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A History of
The Minnesota Crop Improvement Association
1903-1963

ON A SEED

This was the goal of the leaf and the root.
For this did the blossom burn its hour.
This little grain is the ultimate fruit.
This is the awesome vessel of power.
For this is the source of the root and the bud . . .
World unto world unto world remolded.
This is the seed, compact of God,
Wherein all mystery is enfolded.

George Starbuck Galbraith

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The New York Times
May 6, 1960
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A History of

THE MINNESOTA CROP
IMPROVEMENT ASSOCIATION

1903-1963

by

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Preface

I am deeply indebted to Dr. May L. Wright of the Agronomy Department for spending many tedious hours examining records and reports so that the best possible accuracy was available for the charts and tables presented. H. K. Hayes and C. P. Bull have given freely of their time in checking the first draft and giving background information.

R. E. Hodgson, retired head of the Southern School and Experiment Station, Waseca, and Vern Immer, farmer near Jeffers, have written informative letters from which I have quoted extensively. Letters of encouragement have been received from Harold Macy, Dean of the Institute of Agriculture; Milton F. Kernkamp, head of the Department of Plant Pathology and Botany; William R. Kneebone, Agronomist at Woodward, Oklahoma; Robert N. Bieter of Ramey Seed Company, Mankato; Benjamin Klugman of Twin City Seed Company, Minneapolis; Elmer R. Clark, retired agronomist from Crookston and the U.S. Department of Agriculture; R. S. Dunham, retired Minnesota professor of agronomy, and John W. Evans, farmer near Montevideo and former president of the Association, has made helpful suggestions.

We have also conferred from time to time with staff members of the Department of Agronomy and Plant Genetics and the Minnesota Crop Improvement Association. President Robert H. Backstrom of the association has been a real booster for the project as has been Will M. Myers, head of Agronomy and Plant Genetics.

Acknowledging my gratitude for all this help and encouragement, I still accept full responsibility for the contents and its accuracy.

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A History of
The Minnesota Crop Improvement Association
1903–1963

CHAPTER I

In the Beginning, 1903-1904

Founding, early leaders, objectives, addresses, exhibits.

Teddy Roosevelt had succeeded to the Presidency of the United States following the assassination of McKinley. The homestead period was over, Minnesota agriculture had come of age and the family farm was a reality. The year was 1903 and at the State Fair that fall, September 2 to be exact, on the second floor of the Territorial Pioneers' Log Cabin, Willet M. Hays called a meeting to organize the Minnesota Field Crop Breeders Association.

Hays and Coates P. Bull, agronomists at University Farm, had issued a call in a letter of August 2, showing the need for breeding and improvement of crop plants as the livestock growers were improving their animals. They appealed not only to all farmers but especially to "growers of improved varieties for sale or seed purposes" and sought "systematic encouragement of the use of pedigree seeds." These are the words of the first annual report, prepared by C. P. Bull, February 1905. At the organization meeting Willet M. Hays read a draft of a proposed constitution, officers were elected, and the chair was directed to appoint a committee of three to promote the organization of a corn breeders auxiliary. The first annual meeting was set up for January 12, 13 and 14, 1904, at the Masonic Temple in Minneapolis in conjunction with the meeting of the State Fair organization. Premiums for a seed show were provided by seed companies.

What was Minnesota and Minnesota agriculture like in those days? For one thing transportation and communication were slow and difficult. Yet this was a statewide organization which was to grow and flourish. Automobiles were few and unreliable. There were however approximately 500 cars in the state with a large proportion of them owned in the Twin Cities. The St. Paul Daily News on its editorial page August 1903, asked, "Wouldn't it be fine if airships should replace the automobile fad?" Then the suffering from accidents would be limited to the operators, the editors seemed to think.

Roads were poor. A trip from Fairmont to the Twin Cities, a distance of about 200 miles, meant a stopover for one night on the road, and in bad weather a team of horses was as fast and much more reliable than a car. The most common mode of transportation to the Twin Cities from vari-

ous parts of the state was by train, in many cases a long horse and buggy or wagon trip to the hometown depot.

The State Fair opening Monday, August 31, 1903, advertised "Running Races every Night under Electric Lights" as well as "Burning of Rome" fireworks. However rural electrification was completely lacking. Radios and television were, of course, unheard of.

On the other hand, crop production in this state was no infant at that time. Witness the tabulated acreages below from "Minnesota Agriculture 1858-1958," a centennial publication issued in 1958 by the Minnesota State-Federal Crop and Livestock Reporting Service, 531 State Office Building, St. Paul:

ACREAGES HARVESTED OF MINNESOTA FARM CROPS

	1866	1903	1957
Corn ¹	120,000	1,790,000	5,791,000
Oats	165,000	2,530,000	3,996,000
Barley	20,000	1,330,000	819,000
Wheat ²	450,000	4,330,000	699,000
Buckwheat	1,000	7,000	11,000
Rye	3,000	150,000	72,000
Flax	None recorded	655,000	617,000
Soybeans	None	None	2,549,000
All hay	None recorded	3,710,000 ³	3,650,000
Sugar beets	None recorded	None recorded	75,000
Potatoes	16,000	179,000	80,000
Forage crop seeds	None recorded	None recorded	175,000
Peas and corn for canning	None recorded	None recorded	149,000
Totals	775,000	14,681,000	18,683,000

¹ Includes silage and fodder.

² Spring, winter and durum.

³ Figure for 1909, the earliest record available.

The first big industry in this area was fur trade, and somewhat later lumbering flourished. Farming (except for the Selkirk settlement) started in Minnesota about 1840. Marketing of white pine and other lumber was a bigger source of income than wheat in the 1850's, yet the 14.6 million acres of crops listed in the table for 1903 is nearly 80 percent of the present acreages. The present important place of soybeans and corn is evident in the last column. Wheat acreage has fallen off, and total hay holds rather constant.

At that first meeting on the State Fair grounds in 1903, O. C. Thompson of Farmington was elected president; W. M. Hays, St. Anthony Park, secretary; and B. L. Jenks, Stillwater, treasurer. An executive committee was provided to consist of the above three and three more to be elected. Those were L. B. Bassett, Rushmore, who later became a member of the Agronomy staff; Fred Meier, Sleepy Eye; and G. W. Eastman, Crookston. The president was instructed to appoint a vice-president for each congressional district.

Willet M. Hays was secretary for only one year. In June 1905 he was called to Washington as Assistant Secretary of Agriculture, asking C. P. Bull to fill out his term. At the second annual meeting Bull was elected secretary, a position he was to hold until 1920 when he resigned from the University to become a member of the St. John and Bull Seed Company, Worthington. Bull had a great influence on the early growth and development of the association. In the early years he even used some of his own finances in the work.

At this point we are indebted to him for the comprehensive annual reports which he compiled. Printed and bound, they are an excellent record. These are available in the office of the association and in the University of Minnesota St. Paul Campus Library. It is not our purpose here to reprint these reports in detail. Rather we will mention some of the high points and identify a few trends as we look from the hindsight we possess in 1962. Let's take a look at the first one, which is of special interest because it seems to blaze the trail for much that was to follow.

The reader's eye is caught immediately by the advertising. There are 10 6½-x10-inch pages of it placed strategically, four at the beginning and six at the end of the 86-page printed booklet. One is for the Thompson Seed Company of Albert Lea, O. C. Thompson, president. Thompson was elected first president of the association. Other advertisements picture and describe binders, windmills, fanning mills, drills, and a stationary gasoline engine. The Northrup, King and Co. page presents Sterling Seeds and a half-page portrait of James J. Hill with his testimonial to the value of northern grown seeds.

The number of pages of advertising in the succeeding annual reports gradually diminished and none was used after 1910.

The constitution and bylaws were printed in full. (A complete copy will be found at the end of this book). In form and general structure they were much like thousands of other American organizations before and since. The scope was broader though, and the basic purpose most important—nothing less than providing more food for a growing population within and without the boundaries of our state. The title was Minnesota Field Crop Breeders Association. Individual members were to breed plants and not leave it all to the experiment station. They also would maintain the purity of the varieties and strains originated at University Farm. Through the years there was to be a trend away from private breeding but recently there has been a change in that many of the larger seed companies have extensive breeding programs.

Principal objectives shown in the first constitution were: to collect and disseminate crop information, improve by breeding and selection, encourage better cultivation, publish transactions, and to aid in the organization of subordinate and auxiliary organizations throughout the state. The annual fee for membership was set at \$1, which it still is!

Proceedings of the first annual meeting, January 12 and 13, 1904, at the Masonic Temple in Minneapolis, report the business meeting, a seed show, and a verbatim report of the educational talks including the discus-



Willet M. Hays, pioneer plant breeder, in his University of Minnesota office. Picture taken about 1900.

sion which followed many of them. The temporary officers elected at the Fair Grounds were unanimously re-elected. The secretary reported that offers had been secured for seed show premiums from the Minneapolis Chamber of Commerce, the Minnesota Worlds Fair Commission, the State Agricultural Society, Northrup, King & Co., and the Farmers Seed Company.

Reports of the educational program occupy 43 fascinating pages. One finds ideas that are still in vogue mixed with others we have dropped. There are some clear glimpses of their future as we can see our past. Since that day there has been great progress in scientific knowledge of plants and practical breeding methods. Still it appears that Willet M. Hays and others were very much up to date for their time.

A listing of the program can be made from the titles and speakers, as follows:

- Cooperation in Agriculture — Professor R. A. Moore, Madison, Wisconsin
- The Breeding of Corn — O. C. Thompson
- Raising Pedigree Seeds and Plants for Sale — B. T. Hoyt
- Alfalfa Seed — A. B. Lyman
- Weeds and Pure Seed Grain — A. D. Wilson
- Commercial Corn Grading — C. S. Scofield, Washington, D.C.
- Breeding Field Crops — W. M. Hays

Thompson stated that 12 years before, quite by accident, they had produced a cross between two varieties of corn. These "sports," as he called them, turned out exceedingly well. He was using detasseling for crossing, was aware of the need for an earlier variety and seemed to sense the value of mixing unrelated strains.

Hoyt dealt with bud selection of small fruits and berries.

Lyman enthusiastically described his practical experiences with the production of Grimm alfalfa seed and recorded some important details about its origin. A lively and lengthy discussion followed his short presentation. Mr. Stanley Folsom of the Twin City Seed Company recalls that when he was in the seed business in Colorado in 1906, they received 1 pound bags of Grimm alfalfa with documentary proof of varietal purity. This, he believes, is the first authentic record of seed certification in the United States. As is well known, Grimm became a popular and widespread variety, winterhardiness being its outstanding advantage.

"Weeds are like the poor, we always have them with us,—" said A. D. Wilson. This is certainly still true. Scofield was surprised at the very good exhibit of corn for seed. Apparently unaware that there already were nearly 2 million acres, he thought it probable that before many years Minnesota would be producing and marketing corn.

Nearly 60 years after it was written, Hays' address still seems to bubble with enthusiasm. He quoted facts and figures about farming and profit and about the role of the experiment station and the college of agriculture. He presented breeding methods in detail as one would do before a class of students. Then he took off on the raising and training of young folks and back to crop rotation and farm management. Certainly this man was imbued with the "Land Grant Idea" as University of Minnesota's retired President Morrill called it at the recent 100th anniversary of the Land Grant Act which Lincoln signed in 1862.

The seed show was to become a regular part of the annual winter meeting until 1943. In the first show there were seven classes of corn for 10 ear samples, three for wheat, one for red clover, and a sweepstakes. The last mentioned was won by A. C. Cooper of St. Cloud with a wheat sample. There was also an experiment station exhibit and a grain trial exhibit.

So it was launched, the good ship crop improvement, to borrow an expression C. L. Blanchard used 17 years later. The founders were good farmers and students. They believed in science and were optimistic of the future. They were driven by the profit motive, of course, but there must have been something more, something we vaguely define as patriotism or as a desire to do something of lasting benefit to mankind.

CHAPTER II

Early Growth and Development, 1905-1914

Budget; charter members; plant diseases; change of name; Grimm alfalfa; Minnesota 13 corn; increasing membership and larger educational meetings.

At the business meeting on Thursday evening January 12, 1905, "It was thought advisable to ask the Legislature for a modest working fund (\$500 per year for 2 years) to aid in printing, in offering premiums and in other projects that would enhance the improvement of the crop conditions of the state." These are the words of the secretary's report. A bill was drawn up and presented to Honorable Ward Stone of Morris, who agreed to introduce it. However it did not get past the Agricultural Committee because the sub-appropriations committee was so overwhelmed with requests for funds.

The treasurers report the next September 1905 shows:

Total receipts from membership dues 1904-05	\$40.00
Total expenditures to date —	
Stamps	1.00
Mr. Brown for copy of address	5.00
Balance in treasury	\$34.00

Arthur Cooper, treasurer

This was indeed a humble beginning, but a wise and courageous one as subsequent events have shown. At the present time the association handles over \$100,000 a year.

The first directory of members was published in the third annual report dated February 1906. This is reproduced on the following page. Those names carrying the '04 designation are presumably charter members.

A highlight in the scientific educational program of the society was the address given by the well known research leader Professor H. L. Bolley of North Dakota. Given at the third annual meeting at the Nicollet Hotel in Minneapolis on January 9, 1906, his subject was "The Farmers Problem — Wheat Rust and Flax Wilt." He explained that these were infectious diseases, that flax wilt was a fungus parasite living in the flax plant and refuse of the flax plant and in the soil, giving a clear exposition of those facts so little known or little understood at that time. Bolley

DIRECTORY, MINNESOTA FIELD CROP BREEDERS ASSOCIATION

<i>Name</i>	<i>Address</i>	<i>Produces for Sale</i>
W. M. Ash	St. Vincent	Field crops
B. Aune	Morris	Cereals and corn
L. B. Bassett	Rushmore	Corn, barley and horses
A. E. Barther, '04	Minneapolis	Commercial seeds
J. A. Bull	Mpls., Rt. 2, Sta. F	Corn
C. P. Bull	St. Anthony Park	(Asst. Professor of Agriculture)
A. K. Bush	Minneapolis	Commercial seeds
A. Boss	St. Anthony Park	(Professor of Agronomy and Animal Husbandry)
W. H. Crossland, '04	Minneapolis	Commercial seeds, Shorthorns, Berkshires, field seeds
A. C. Cooper	St. Cloud	
Crandall Brothers, '04	Red Wing	
Francis Carey	Mapleton	Wheat, corn, barley, oats
Alex Carlyle ¹	St. Anthony Park	Breeding, field crops
E. G. Enestvedt	Sacred Heart	Corn and cereals
E. Evenson	Litchfield	
G. W. Eastman, '04	Crookston	Farm seeds
P. Foss	Mpls., R.R. No. 4	
D. M. Hamilton, '04	Minneapolis	Commercial seeds
H. P. Hanson	Albert Lea	Corn
Thomas Horborn	St. Cloud	
W. M. Hays, '04	Washington, D.C.	(Asst. Secretary of Agriculture)
B. A. Horvik	Fertile	
B. L. Jenks, '04	Stillwater	Corn and small grains
L. Johanneshon	Beltrami	Field seeds
H. G. Krvin	White Bear	Yorkshire hogs
A. B. Lyman	Excelsior	Grimm alfalfa and apples
A. J. Lasby, '04	Northfield	
C. C. Massie, '04	Minneapolis	Commercial seeds
D. D. Mayne	Maple Lake	Cereals
Fred Meier	New Ulm	Commercial farm seeds
C. H. Murphy	Caledonia	Corn
Clarence Newman	Stillwater	Field seeds and Berkshire swine
A. P. Nelson	Maynard, Route 2	
J. E. Northrop, '04	Minneapolis	Commercial seeds
J. J. Norby	Lake Park	
E. O. Oppegaard	Sacred Heart	(Farmer)
C. J. Orton	Marietta	(Farmer)
Northrup, King & Co.	Minneapolis	Commercial seeds
W. C. Palmer, '04	Lynd	
Robert Pond, '04	Bloomington	Corn
Gustav Rosche	Westbrook	
Harry Snyder	St. Anthony Park	(Professor of Agricultural Chemistry)
O. C. Thompson	Albert Lea	Commercial farm seeds
A. D. Wilson	St. Anthony Park	(Assistant in Agriculture)

¹ Carlyle was nursery foreman for C. P. Bull

pointed out that wheat rust was not primarily due to weather but to a fungus inside the plant. He described how barberry serves as an alternate host and emphasized the value of selecting wheat for resistance. This, mind you, was in January 1906. His talk, as were the others, is printed verbatim in the annual report.

According to the report of the corn auxiliary committee at the 1905 annual meeting, the average yield of corn for all of the United States was 28.8 bushels per acre and the 10-year average for Minnesota 29.1 bushels. "This is woefully low since it is possible with good seed, good selection and good culture to raise 60 or 75 or more bushels," stated the report. A prophetic statement indeed, because comparable figures for the 10-year average 1948-57 are U. S. average 40.6 and Minnesota average 48.4. Yields over 100 bushels per acre are not uncommon.

The report also states that "an affliction has been affected whereby the winners of the county contests (as outlined in Rural School Bulletins) exhibit their wheat, oats and corn in a contest for cash prizes to be procured by Professor D. D. Mayne." Professor Mayne was head of the School of Agriculture from 1903 to 1929.

The treasurer's report of January 1907 shows an expenditure of \$144 for printing and presumably for travel expense of speakers. Income was from dues and from advertising in the annual to cover this increase over the \$40 handled in 1905. The association was beginning to grow.

In these early days the leaders had already developed the philosophy and viewpoints which serve as guideposts and basic tenets held through the years up to the present day. Witness the following list of principles by E. G. Enestvedt of Sacred Heart, one of pioneer members of the association, which was printed in the third annual report in 1906. We reproduce his statements in full below. Mr. Enestvedt was a graduate of the School of Agriculture at University Farm.

FARMING WITH PURE SEEDS

Pure seeds are essential to good farming.

It may appear at the first glance that a stray kernel here and there will have no material effect on our success as farmers; but let us stop and consider just what these stray kernels actually do.

There are never many varieties that have the same power to resist diseases such as rust, consequently the least resistant varieties will breed the rust even if the weather is not very favorable for its progress. This is best illustrated in a mixed crop of oats, and thus have a full supply on hand to infect the whole field when the weather gets more favorable for the rust, thus the damage may be manifold greater than it would have been had the seed been pure.

Now even if these stray kernels were as strong to resist the rust, they may cause practically the same trouble if they are a shade earlier than the main crop, as they are susceptible to grow the rust sooner than the rest of the crop; thus in the same way the rust spores have gained a foothold in the field sufficient to badly infect the whole crop when it is far enough advanced.

It will plainly be seen that these few insignificant kernels in many cases will actually make the difference between success and failure.

A very good way to quarantine the crop, is to keep these weak and disease-susceptible individuals out of the field.

To do good grain farming, we must advance and improve our grain, for the minute we lose sight of this, our titles as good farmers will sound rather hollow.

If we are to dream of improving our grain, we must have pure stock to begin with, or it will have the same effect as would mixing up different breeds of cattle with the object of improving them. It would be a hit and miss affair, to hit the mark "miss" every time.

With corn, for instance, it is impossible to improve, or even to keep up the uniformity in size, yield, and other good qualities, without having pure seed.

There is one kind of farming with impure seeds, in which we have all been more or less engaged. That is in fighting weeds such as wild oats, mustard, and other unwelcome intruders. We must take some definite action and turn these unpleasant visitors out or they will turn us out. Apply that golden rule which is used in our farming operations and the business world today: "Do the other fellow or he'll do you."

To farm year after year by the course these noxious weeds direct you, and enjoy the luxuries they afford you, is no pleasant dream; it must be more like a nightmare that keeps active even in daylight.

We will find it more pleasant and more profitable to farm with pure seeds than to fumble in wild oats with a notebook in our hand to assist our memory in identifying the kind of crops sown in the respective fields.

This one-horse-affair farmer must sooner or later give way to him who does his farming with "pure seeds."

Also a word in regard to the sanitary conditions of the farm. Each field should be of a uniform state of fertility without any places where straw piles have been burned or rotted. It can be noticed that such places make an earlier start in the spring and as they are always more or less rusted they do their level best to supply the rest of the field. The same will be noticed where fields adjoin a grove as they grow an earlier crop in an atmosphere ideal for the rust to develop. Such locations could be very profitably put into a rotation of pasture, fodder corn and garden. Fences with a hedge of weeds alongside of them also help to destroy the health of the crop. To guard against such weedy fences, it is a pretty good plan to plant clover and timothy a year before the posts are planted, this will make the farm look better and the crops feel better.

Both rich or too low ground is generally improved by spring plowing, provided it is done early and it is rolled once or twice to make a firm seed bed.

A regular rotation of crops, a uniform but rather thin application of manure once in the rotation, along with good work, will put the fields in a healthy condition, and the crops will be on the lookout for a chance to give a bumper of a yield.

Mr. Enestvedt's three sons, Bert, Johannes and Odean have continued the pure seed growers tradition, being recognized together in 1959 as premier seed growers.

On the other side there were then as now plenty of stories, mostly true, about schemes and short cuts to beat the legitimate pure seed business. One is about a farmer who had been growing and selling authentic Grimm alfalfa seed. His volume showed a sudden remarkable increase and on investigation it was found that he was shipping common alfalfa from Kansas, having it delivered in a town 30 miles away addressed to the name of his former hired man who had died.

"Alaska wheat" which turned out to be of Egyptian origin not adapted here was once offered for sale. Another "gold brick" scheme was a "wonder lawn grass" which a salesman peddled and then got away fast. This man used a flat of luxuriant growing grass as a demonstration but apparently it was from different seed than he sold.

On October 26, 1907 F. H. Gibbs and C. P. Bull representing the Agricultural Association of Minnesota met with A. C. Cooper, Thomas Horborn and L. B. Bassett representing the Minnesota Field Crop Breeders Association. Growing out from their discussion, the executive committee recommended the two organizations join "to broaden the scope" and that the new group be called the *Minnesota Crop Growers Association*. Approval of combining the two associations was officially adopted at the annual business meeting in January 1908; however, the name Minnesota Field Crop Breeders Association was retained. Instead Articles II and III were amended to cover field and garden crops rather than field crops only. At this meeting F. H. Gibbs read a paper on Onion Culture and E. M. Libby presented one on Potato Culture. In the 1913 meeting the name was changed to the Minnesota Crop Improvement Association, which it remains to this time. Improvement of horticultural crops, including potatoes, was not mentioned in the annual reports after 1913.

In the report issued in February 1907, Secretary Bull described the Seed Grain Plot, apparently a reprint from an earlier publication. This was presented as follows.

S.P.	B.S.S.P.	B.S.S.P.	B.S.S.P.
	L.F. from 2 G.S.P.	L.F. from 2 G.S.P.	etc.
		Seed for Sale	etc.

S. P. — Seed Plot
 B.S.S.P. — Best seed from previous year
 L.F. from 2 G.S.P. — Large field from 2nd grade; very best used for next seed plot.

The seed plot was to be planted from pure seed of the variety to be grown and carefully rogued removing weeds and off types of the crop. This seed was then to be used to plant the following years seed plot and the remainder to be used for increase in a larger plot. The increase from this G.S.P. was to be used the following year to plant a larger area where seed for sale was produced.

Way back in 1891 the experiment station distributed Pillsbury Fife wheat, Minnesota No. 163 fife wheat and Minnesota No. 169 bluestem wheat to farmers, issuing a certificate testifying that the seed had been purchased from the experiment station. Farmers were asked to report on

performance of the crop. They, of course, could use the certificate as proof of origin when offering seed for sale. This system was used in following years for corn, oats, hay and barley, but was discontinued when it was found that varietal purity was not maintained to the extent desired. Later more desirable certification methods were developed.

In 1907 Dr. E. M. Freeman, plant pathologist, started breeding for rust resistance in wheat in cooperation with Dr. I. J. Johnson of the U. S. Department of Agriculture. Many crosses of bread wheats with durum and emmer were studied. According to Dr. H. K. Hayes this was the most interesting breeding project in existence when he visited the Minnesota station in 1914. Soon after he came here in 1915, Hayes was asked to join in the study. Instead of many crosses and few plants grown in F_2 he proposed intensive study of a few crosses and the growing of large populations as F_2 and F_3 generations. At this time the late J. R. Parker had taken over the position of Dr. Johnson and was in direct charge of the details. From the Iumillo durum x Marquis cross one F_3 family contained three bread wheat types which were rust resistant. The progeny of one of these after extended study was introduced in 1927 and named Marquillo. Later from a cross of a sister selection with a purified F_3 of Marquis x Kindred and extensive study Thatcher resulted. This was a phase of the program under the joint leadership of H. K. Hayes, E. C. Stakman and O. S. Aamodt of the U. S. Department of Agriculture for breeding rust resistant wheats. This project drawn up in 1921 by Hayes and Stakman continued until 1953 and members of both Departments of Agronomy and Plant Genetics and Plant Pathology and Botany were active leaders of special phases.

Here we see the beginning of cooperative breeding for disease resistance, a field of work in which the Minnesota station has held a position of leadership for many years.

Grimm alfalfa and Minnesota 13 corn were perhaps the two outstanding accomplishments of the early days of the association as far as promotion of improved varieties is concerned. We have referred to Grimm alfalfa in Chapter I and its story has been completely told in other publications. Minnesota 13 became the most widely distributed variety of open pollinated corn in the Northern corn belt.

In the case of both Minnesota No. 13 corn and Grimm alfalfa station leaders recognized the value of these varieties and led in their wide distribution. Bob Hodgson, retired head of the School of Agriculture and Experiment Station at Waseca has furnished us the following first hand account of early developments in corn breeding. We quote him directly.

In 1888 my father moved to Rock County, Minnesota from Illinois. At that time he was told he'd better forget about raising corn so near to the North Pole. The only thing that could mature was a "Squaw flint" variety which might make 12 bu. per acre. Dad set out to prove that this was wrong and I can remember his pleasure and satisfaction when he harvested 75 bu. per acre of good yellow dent corn.

An old timer who knew my father well in those early years told me that dad was "an inveterate experimenter with corn." I do remember that he purchased seed from many sources and tried it in trial plots. Probably there was some crossing with

his own corn. Once he purchased 10 kernels of corn from the champion 10 ear sample at the International for \$1 per kernel. He didn't expect that it would do well in Minnesota and it didn't.

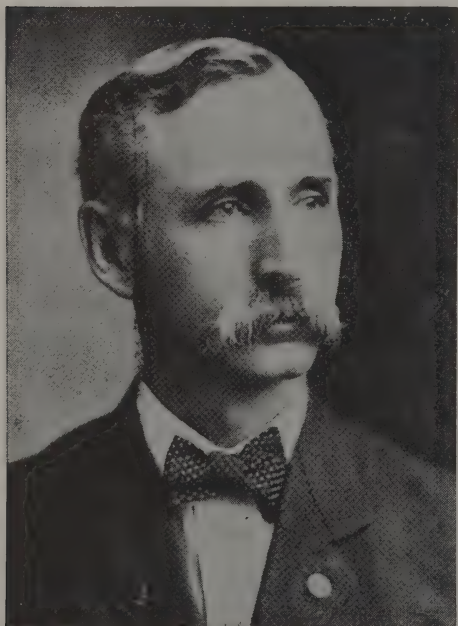
When I was old enough to tag along, he let me "help" him pick seed corn. This was a most important and particular job. He looked first for a good ear with uniform kernels (we had no corn grader). It must grow on a strong stalk in a full hill, surrounded by full stand hills. This was actually more advanced selection than was advocated in a "corn judging" class taken at the University in 1914-15. In that class, emphasis was placed on type and appearance under the supposition that good appearance predisposed seed to a high yield.

Dad carefully dried his seed ears and shelled each one by hand. Tips and butts were discarded. They were hard to plant evenly but some "breeders" preached that if butts and tips were discarded, the ears would automatically get shorter and shorter. Dad didn't believe that. He was selecting for maturity and yield above all else.

Father's corn breeding is only mentioned to illustrate the fact that large numbers of farmers were studying their corn and trying to improve it by methods then employed in animal breeding. They made a lot of progress as indicated by the increased yields of the corn fields in southern Minnesota. Dad sold lots of seed. There were such men in every county, I suppose. These were individual efforts, reported or suggested by articles in such papers as Wallace's Farmer. That's the one I remember best.

In the book "Andrew Boss" pages 30, Dr. Hayes says, "Professor Boss in 1893 at Hays' request visited DeCou and Co., a St. Paul seed firm, and purchased the original stock of Minn. 13." This would set the date. I have no information as to the methods used to improve it.¹ It is probable that selection was made on maturity and trueness to type. Ear to row selection could have been used. At any rate, it met a need.

Certainly no attempt was made to keep this new variety under station control. Everybody began "improving" Minn. 13 unless they were already obsessed with some other variety. It is rather remarkable how well the variety stuck to the physical characteristics selected. In southern counties they made the ears larger. In central Min-



C. W. Glotfelter, Waterville, Minn., President, Minnesota Field Crop Breeders' Association, 1908-1914. He became a member of the board of regents of the University. H. F. Skyberg of Fisher, also became University regent after serving as president of the association from 1938 to 1941.

¹ See below information supplied by C. P. Bull.

Coates P. Bull, who served as secretary of the society almost from the beginning, 1904 until 1920.



nesota, Haney's 13 was a smaller, earlier version, yet both had many similar characteristics. There were probably hundreds, if not thousands, of "Minn. 13" selections. The important thing is that they moved the corn belt north.

To illustrate what a wide range was covered by "Minn. 13," one Ole Olson, living near Amboy, entered some of his seed corn in a "Variety Competition" we set up to compare our first 3 way cross with the corn farmers were growing. This was about 1931. For several years we secured seed from top corn growers and planted triplicate plots in some 7 or 8 places between Winona and Luverne. Farmers were invited to help pick the plots at harvest time and yields were calculated.

In most cases, our new 301 hybrid was the highest yielder but in this particular test at Amboy, Mr. Olson beat us. I asked him what he called his variety. "It's Minnesota 13, grown and selected on this farm for 20 years," was his answer. This puzzled me and I asked his son how the old man could get such obvious vigor under close selection. "It's true that dad has selected his corn carefully to get what he wants but each year he hunts up some corn of similar type and mixes a bushel or two in with his own seed." Mr. Olson's Minn. 13 was probably more or less typical of that produced by the better corn growers. The variety name covered most any dimple dent yellow corn of appropriate maturity.

This is about all I can remember except the hours spent in "judging" open pollinated corn. Often over 100 entire of 10 ear samples of Minn. 13! It was an experience.

* * * * *

C. P. Bull who graduated from the University of Minnesota in 1901 with a B.S.A. has some still earlier recollections about Minnesota 13 corn. We discussed with him the origin of the seed referred to above by Hodgson, which Andrew Boss purchased under the direction of Willet M. Hays. Bull suggested that this should be recorded in W. M. Hayes old accessions and sure enough we found this book among the agronomy records with an entry reading Minn. No. 13, St. Paul DeCou and Co., April-1-

1893, which means this was the 13th strain of corn introduced into the University's breeding program.

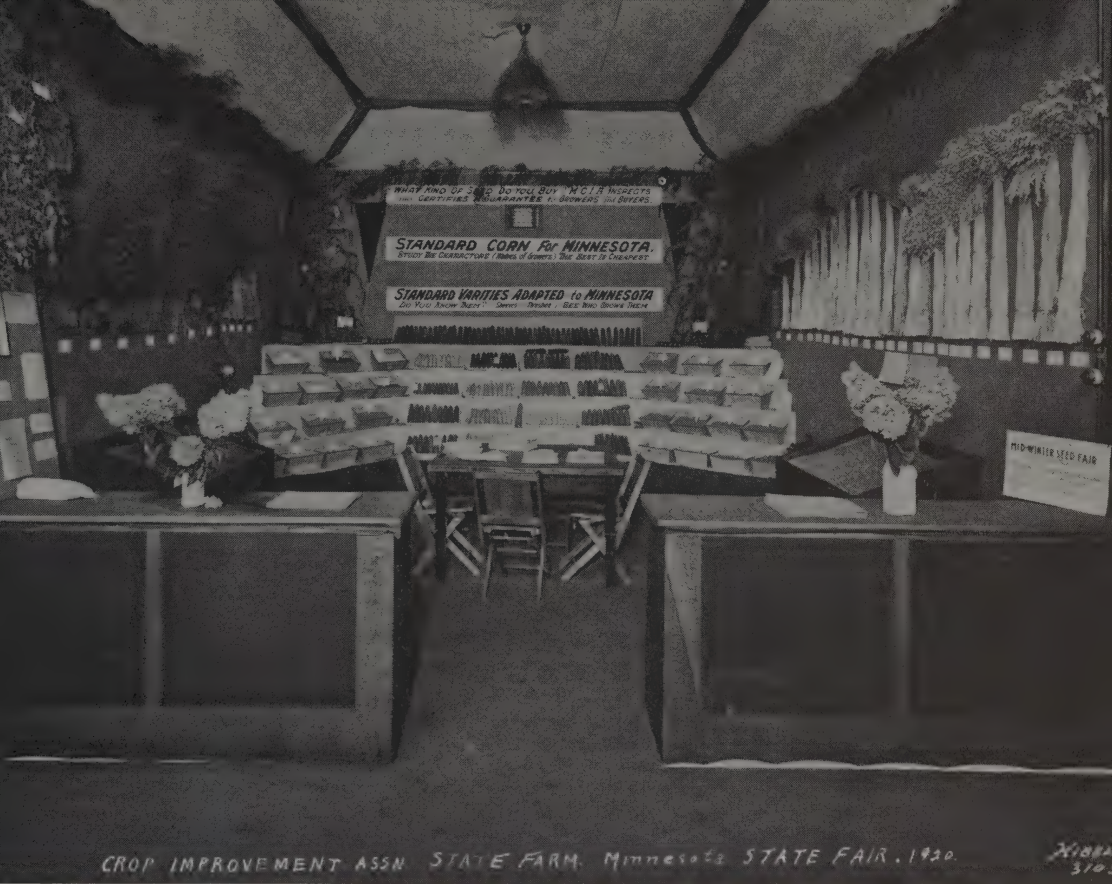
This lot of seed was planted at University Farm and in the fall Hays selected the best, longest ears, regardless of type. The same program was followed until 1902. Size and yield and the securing of a reliable maturity time for southern Minnesota were the main criteria up to this time. In August 1902 Bull was employed to do teaching and experiment station work in Hays' department. He continued selection with a view toward getting a recognizable type of early maturity and good yield. The first authentic distribution of Minnesota 13 was made from more than 1000 bushels which W. M. Hays had grown under contract with a southeastern Minnesota farmer in 1905 or 1906. The variety became very popular and probably was the most widely grown dent corn in Minnesota previous to the introduction of hybrids in the late 1920's and early 30's.

Among the first pure seed growers of Minnesota 13 established by the Minnesota Crop Improvement Association were O. C. Thompson, Farmington; E. G. Enestvedt, Sacred Heart; C. E. Brown, Elk River; J. W. Beekman, Cokato and several others. Other early corn varieties introduced through the association were Minnesota 23, White Cap Yellow Dent, and Minnesota 287 sweet corn.

The score card for corn is reproduced in the third annual report, giving points for such characteristics as form of ear, tips and butts, kernel uniformity, and space between rows, patterned after the one developed by the Illinois Corn Growers Association. This was the old fashioned "beauty contest," which modern day corn breeders have shown to be of little practical value. It did however serve to increase interest in good corn and other crops. The scores given were the ones used for the Rural School contest which the association sponsored, starting in 1906, and for short course students at the School of Agriculture at University Farm, according to the report. The same or a similar scoring was used all over the country as an aid in judging and a guide in selecting seed corn. Corn and corn growing occupied a large part of the discussions at the annual meetings during these years. Outstanding is the one given by C. P. Hartley of the Department of Agriculture in January 1908. He emphasized crop rotation with grasses and especially legumes, better machinery, good seed and early maturity.

In 1906 the corn auxiliary report stated "Southern Minnesota can grow corn that requires 120 days for maturing; central Minnesota can safely grow 110 day varieties; Northern Minnesota is reasonably safe in growing 90-100 day varieties." This must be the origin of our present day zones.

Cooperation with the State Fair is clearly evident in the reports. C. P. Bull was responsible for arrangement of exhibits and judged corn, grain and county exhibits from 1900 to 1902. A list of premiums and several fine pictures of exhibits are shown in the February 1908 annual. Rules were issued governing the midwinter seed grain exhibit held at the old State Capitol January 14, 15, and 16, 1908. There were classes for corn (14 lots), barley (2 lots), flax, rye, wheat (4 lots), oats, red clover, alsike, and



bromus. Prizes were \$12 to \$20 for each lot and total premiums paid amounted to a little over \$300.

The 1909 and 1910 annual reports, were issued in one volume, the secretary notes that "farmers generally have had a few very prosperous years and on the whole good crops." The period 1910-1914 was of course later taken as the base for figuring parity price when that idea was sponsored by Henry Wallace, U.S. Secretary of Agriculture, in 1933. Secretary Bull also exhorted farmers after the fashion of the day, to do better with pure seeds, better cultivation and better harvesting and storage. By contrast in the 1960's as this history is being prepared, agronomists seem to be challenged to keep up with farm operators in the application of new ideas.

The membership had increased from 37 in 1907 to 107 in 1908.

In the programs of 1909 and 1910 considerable attention is given to soil management and conservation. For example, at the 1910 annual meeting President J. H. Worst of the North Dakota College of Agriculture gave a long address on the conservation of soil fertility.

"The issue — is food and clothing for the world," he said. "Population may some day overtake food supply. But when we study the laws of nature as industriously as we have studied language, history, and the arts,

agricultural science will, doubtless, challenge nakedness and hunger for years to come."

Crop rotation, avoidance of waste, and the value of manure was emphasized. Now in the 1960's we have surplus food in this country as a result of the industrious studies he called for.

This annual meeting was held at the New Capitol, on January 11, 1910. The forenoon session, at which President Worst talked, was held jointly with the State Agricultural Societies. In the afternoon corn was discussed by several speakers, E. C. Schroeder of Glyndon talked on "Potatoes in Northern Minnesota for Seed and Shipping," and Robert Carmichael of Farmington gave an address on "Quack Grass Killed by Cultivating Profitable Crops."

At intervals during the day long session, the crowd was entertained by Miss Hope's orchestra. The business meeting and banquet were in the Commercial Club rooms, St. Paul. Here is the menu of that banquet.

Blue Point Cocktail		
Celery	Olives	Almonds
Green Turtle Soup	Roast Filet of Beef	Fresh Mushrooms
Stringless Beans	Potato Croquettes	
Head Lettuce, Hongraise		
Neapolitan Ice Cream	Cakes	Coffee
"Credit Men"		

No one got a free meal except program speakers from out of state. These days (1963) members of the University staff get in free.

The day long educational meetings in those times must have produced some lively entertainment along with the information on farming. Witness the following joking remarks recorded in the minutes of this 1910 meeting. When he was called on by the chairman, Senator Sageng replied, "I was so far back that I didn't hear what the president was saying and if I had known what he was saying I would have been still further back—."

Bragging about the merits of one's home county still causes a lot of fun nowadays and that was obviously what one member was doing when he said, "The great trouble with Olmstead county is that it is too rich, we do not know how to reduce the fertility, so that it won't produce too much straw. The consequence is that our farmers are getting too rich, the banks are so full of money that they do not know what to do with it."

As the years go by during this period we see many evidences of increase in size and strength of the association—a growth which was to accelerate in the 20's and 30's and continue up to the present (1963).

In 1913, the secretary "begs to report that the work of the office has increased full 100%." The 1914 directory lists 114 members plus two honorary members, W. M. Hays, Washington, D.C. and Professor R. A. Moore, Madison, Wisconsin. Three special contributors are shown, namely John A. Salzer Seed Co., La Crosse; Northrup, King & Co., Minneapolis;



Sample of Triumph flint corn presented at 1909 winter show by Jno Henderson of Cokato.

and Northfield Seed Co., Northfield. At the annual meetings and institutes large crowds were attracted, often 300 or more people.

The society then as now acted as a cooperative with the Agricultural Experiment Station, yet as an independent agent. The secretary's report for 1912 reads in part as follows:

"There has been started this year in Minnesota a movement which may be roughly known as the pure seed movement. — Cooperation of the Experiment Station and the Minnesota Field Crop Breeders' Association. — demand on members of this association for the growing and breeding of these improved varieties —. Included in the seed list strictly pure, strictly clean and high class —. This contemplates the inspection during the growing season —. The farmer having such seed will be able to demand a reasonably high price —."

Here certainly are some of the basic tenets of the association to this day.

Interest in seed shows grew and flourished. For example, in 1911 the association helped with the State Fair exhibit, the Minnesota Land Show in Minneapolis, one at Heron Lake, and several other local shows. At the National Corn Exposition held at Columbia, S. C. January 27 to February 5 (1912 presumably) Minnesota won grand champion sweepstakes prizes in alfalfa seed, flaxseed, sweet corn, timothy seed, and hard spring wheat.

The winter seed show and exhibit were always held in connection with the annual association meeting. The 1911 and 1912 meetings were held in Minneapolis, 1913 and 1914 meetings in Mankato, and the 1915 meeting in Brainerd. Previous to this time they had been held in the Twin Cities but only once at the Agricultural School Auditorium, that in 1908.

An exhibit of flint corn from the show held at the 1909 winter meeting is shown in photograph on page 19. Since the available flint varieties were earlier in maturity, they were grown rather extensively in the early days of the association.

Resolutions shown in the minutes during this period also attest to increase in size and influence. The Blue Earth county unit asked the Legislature for \$2,500 for the educational work of the Minnesota Crop Improvement Association in 1913. Other resolutions passed at the state meeting at Mankato in 1914 were to the effect that Rural Schools should teach agriculture, county agents should not be limited to 35, the Legislature should provide for soil survey, and the enactment of a state seed law.

* * * * *

Meanwhile the storm clouds were gathering in Europe. Soon the U. S. became involved and Congress declared war on April 6, 1917. Thus came to an end the so called "Golden Era" in American agriculture. World War I (it was called The Great War before World War II came along) changed many things and had its influence on the Minnesota Crop Improvement Association.

CHAPTER III

The New Function of the Association, 1915-1924

Three hundred members, Boss' speech, seed lists, field inspection, varietal purity, exhibits and seed shows, depression, scientific leadership.

The proceedings of the society from 1916 to 1920 are printed together in a 267-page book compiled by C. P. Bull. In the foreword he records that the Legislature has been liberal (except in 1917 when a member of the finance committee cut off the appropriation). Treble the former funds were the anticipated need for 1921, and the request was for \$6,000.

The membership had reached 300 by 1920 and Bull expected that "reasonable effort" would make it 500 in a year or two. New features have given the Minnesota Crop Improvement Association prominence compared to other states, he said. These were (1) a monthly news letter to keep members posted on crop and seed conditions, and (2) *a seed list giving the names of those having inspected and approved seed for sale.* This was started in 1912 and a statistical summary of listings will be shown in the last chapter. "More elaborate and far reaching has been the expansion of the inspection work destined to create a series of sources from which better seeds are to be had," Bull said.

The inspection work referred to is described in a paper given at the Fifteenth Annual Convention held at St. Cloud in 1919, under the title of "A New Function for the Minnesota Crop Improvement Association." The proposed new procedure was prepared by Andrew Boss, at that time chief of the Division of Agronomy and Farm Management, and read by Professor L. B. Bassett. Because this speech was so well organized and because it turned out to be so prophetic of the future trends of the association, we reproduce it in full on the following pages. Andrew Boss was indeed a man of vision and a practical hardheaded economist as well.

A NEW FUNCTION FOR THE MINNESOTA CROP IMPROVEMENT ASSOCIATION

A Paper Prepared by Professor Andrew Boss, Vice Director Minnesota Experiment Station, University Farm, St. Paul

The Minnesota Crop Improvement Association has been in existence for fifteen years. During that time it has endeavored to foster and promote

the growth and distribution of good seed of various farm crops and to cultivate a spirit of co-operation and helpfulness among the men who are trying to improve agriculture in Minnesota. It has contributed to the exhibits at the State Fair, to the success of crop and livestock shows, and has in various ways assumed responsibilities which could not well be assumed by other existing agencies. It is not enough, however, to repeat each year the program of the year before and new fields of development must be sought. There is no such thing as standing still in any vocation in life and any organization which stands still is likely soon to find itself slipping backward. With the thought of enlarging the field of usefulness of the Minnesota Crop Improvement Association and with a view to the development of the agriculture of Minnesota to a much higher plane than it now holds, I am willingly undertaking to suggest this new function for the association.

In presenting the new function it seems best to look backward for a time before looking forward. The Minnesota Experiment Station began the improvement of varieties of farm crops in 1890 when Professor W. M. Hays started the first bed of individual timothy plants at University Farm and grew a few individual wheat plants. The start was small but it gave the inspiration for greatly extended work. During the years 1894 to 1900 this work in plant breeding was greatly expanded until millions of plants were handled annually. The method of selection, of hybridization, and of combinations of the two methods were studied with a view to developing new and better varieties of grain than had previously existed. This work was interesting and in the main crowned with good results. It was widely copied in other states and is still being conducted at the Minnesota station with very satisfactory progress being made. During the progress of these studies it was discovered that if the farmer of Minnesota were to secure the benefits of the new varieties they would need wide distribution and test among the farmers so as to determine just what conditions they would do best under. This led to the development of a plan of selling the improved grains to farmers at a nominal figure, requiring from them in return a report of the behavior of the variety as to yield and general desirability, and an attempt on their part to keep it pure and offer it for sale as seed grain. With some of the improved stocks a plan of seed certification was inaugurated, this certificate stating simply that seed of the variety named had been purchased from the experiment station, giving the year in which purchase was made. This certificate was used as a credential for the source of origin of the seed offered for sale and, of course, had a distinct selling value. This plan had certain value but did not meet the needs of the case entirely and in later years was discontinued. Under this plan of introduction there had been disseminated among the farmers in Minnesota the Pillsbury Fife wheat in 1891, the Minnesota No. 163 fife wheat, and Minnesota No. 169 bluestem wheat in years following; also Minnesota No. 13 corn, Minnesota No. 23 corn, Minnesota No. 25 flax, Minnesota

No. 105 barley, Minnesota No. 281 oats, Minnesota No. 295 oats, and various other stocks promised to give increased yields. The reports returned from farmers who secured new stocks of seed and grew the crops indicated that these varieties gave an increase of 5 or 6 to 37 percent in yield and at the time of introduction were regarded as a decided improvement over the kinds commonly grown.

The unfortunate fact concerning the distribution is that within two or three years usually after securing new stocks of seed the seed has become mixed in variety or contaminated with weeds and for one or the other reason considered unfit for seed. In this way the source of supply was always necessarily limited and it was difficult to find stocks of seed that could be unqualifiedly recommended for use. Frequent calls for car-load lots of bluestem wheat, of fife wheat, and of pure strains of oats have had to be referred to other states or supplied from other sources for the simple reason that creditable stocks for filling the order were not available. Not because good grain was not grown in Minnesota but simply because the grain was grown by individual farmers and there was no method of inspection for finding the good seed and no method of getting the good seed when found. In this connection it would perhaps be well to call attention to the fact that there is annually a large loss to growers of grain who offer on the market grain of mixed varieties and frequently of poor grade. Impurity of seed results from mechanical mixing usually and is very difficult to control for more than two or three years unless special attention is given to the selection of seed stock. The growth of fields expressly for seed would be advisable. The inspection of these fields by someone who knows varieties and who also knows the qualities of good seed is essential. The inspection of the seed before offering for sale is also an important function. Both buyer and seller appreciate the value of good seed and should take every precaution to get only seed that is what it is reputed to be. The Experiment Station in disseminating the seeds above named did not have a sufficiently large force of men, nor funds for following these seed stocks into the field, for inspecting them and certifying their purity and value. Neither was it regarded as a proper function for the Experiment Station as the Experiment Station does not wish to enter the commercial field in any way. Because of this lack of inspection and certification and because no one was actively stimulating farmers in various communities to produce pure seed and to keep it pure, the good seed stocks disseminated have very largely been dissipated or so contaminated and mixed that they are comparatively worthless.

THE PRESENT PLAN OF THE EXPERIMENT STATION FOR MAKING NEW VARIETIES

The Minnesota Experiment Station has a well organized plan of developing new varieties of grain. A well established plant breeding section, under the leadership of Professor H. K. Hayes, undertakes to purify old varieties by selection, to bring into use through new introductions varie-

ties that have been found to do well elsewhere and to originate new varieties by hybridization or cross breeding some of the more desirable sorts. By noting the characters and habits of varieties it is possible to purify through continued selection, varieties that will reproduce purely unless they become mechanically or accidentally mixed. These pure line selections are the most constant source of valuable varieties. The new introductions are secured from any place where climatic and soil conditions are similar to ours and where there is a possibility that the new varieties will succeed under the method of selection and purification followed. By knowing the characters of the plants and what to expect when certain plant characters are brought together in a hybrid it is possible to combine certain qualities often found in two separate varieties and in the resulting progeny find increased yield, better quality or some other desirable quality that had been dormant in the parent plants. Instances of this kind are a combination of spring and winter wheat for the hardy quality of the spring wheat and for the heavy yielding qualities of the winter wheat, or for instance where a very hardy but low yielding variety of winter wheat is crossed with a less hardy but high yielding variety of winter wheat. The possible result would be a progeny of large yield and of the hardy quality of the first parent. Needless to say these expectations are not always realized but the plant breeder has to take chances or he would make no new inventions.

When the work of the plant breeding section has been completed and varieties are found that seem to possess desirable qualities they are turned over to the farm crops section, in charge of Professor A. C. Arny, for test in comparison with the standard varieties commonly grown. These tests are carefully made on uniform land at the central station. They are supplemented by tests of the same kind at the various substations and continued indefinitely. Averages of the yields and qualities and habits of growth are made for three or five year periods and those that under comparative trials of this kind best meet the economic conditions are selected out for increase and wide distribution. In determining the varieties that are worthy of advancement the plant breeders who originate the varieties, the farm crops men who test their values at the experiment station, and the seed distribution men who know their behavior over the state, are called into conference and make the final decision.

When the best varieties in the tests have been found they are turned over to the section of co-operative seed production and distribution which is in charge of Professor C. P. Bull. Through his office these desirable varieties are increased in quantity and offered for sale to the farmers of the state. Those desiring to buy them can secure them at a reasonable price. They should be willing to pay about 25 per cent advance over the market price for market grain. In brief, this is the plan that has been followed in the past and which is all right, so far as it goes, but inspection of growing fields, of bins of grain and of stocks of seed offered for sale is not provided for.

THE NEW FUNCTION OF THE MINNESOTA CROP IMPROVEMENT ASSOCIATION

The new function of the Minnesota Crop Improvement Association is to provide a medium for the continuation of these varieties in a pure form through co-operating farmer growers and further to provide a system of offering field and bin inspection and certification which will insure large stocks of pure seeds of various desirable kinds and which will start an organization which can get together carload lots of certified seeds that can be absolutely relied upon. This work the Crop Improvement Association can do through the office of its secretary. The Minnesota Experiment Station will furnish the secretary with a list of the names of those who have purchased pure stocks and the secretary, with the necessary assistants, can arrange for a schedule of field and bin inspection, for the registration of stocks, and for the certification of stocks of seed offered for sale. During the past fall the secretary of the Crop Improvement Association has undertaken to inaugurate this movement in part and has made arrangements to certify certain seed stocks which have been inspected. The plan calls for the following steps: First, an application for inspection. Blanks for each of the crops have been devised by the secretary and will be furnished on application. It involves fees for inspection, and registration, which are suggested as follows: Membership fee in Crop Improvement Association, \$1.00; fee for inspection of the crop, \$2.00; fee for registration of crop, \$2.00 additional. The details as to amount of fee and what fee should be charged should be worked out by the Crop Improvement Association. The object of the fee, of course, is to pay the traveling expense and the assistants needed for the inspection and certification work. In other words, the inspection and certification should be made to pay its own way. Attention of the members of the association is called to the fact that this is not strictly a new plan, but rather a redirection of the old plan. It is a plan that has been worked with apparently very good results in Michigan and it has also been used extensively in Canada where a very active seed association is maintained.

MINNESOTA PLAN FOR SMALL GRAINS

In operation in Minnesota it is hoped that the plan may work out about as follows:

(1) The farmers will secure from a reliable source approved stocks of improved varieties;

(2) From these, selections will be made of 25 to 30 pounds of grain in the head;

(3) These heads are to be threshed and cleaned by hand;

(4) From the grain so threshed, grow on clean land that is in good condition a plot of one-fourth acre or so of what is known as hand selected "Elite" stock;

(5) Select from this quarter acre plot 25 to 30 pounds of heads by hand for the selected Elite plot the following year. The balance of the

seed from the quarter acre plot will be sown in bulk as first generation registered seed.

(6) From the bulk plot provide for the following year such seed as may be selected for home use and offer the balance for sale as registered seed. From this registered seed a second and a third generation may be grown which when duly inspected and certified will be offered for sale. The idea is to maintain an Elite plot through hand selection and hand preparation each year and to sell only registered stock from the bulk plots up to and including the third generation. It is difficult to maintain purity beyond that time.

This plan, known as the Canadian plan, has the support of the Agronomy Division at University Farm. It is understood that no seed will be registered beyond the third generation from Elite stock.

It should be clearly understood that the association inspectors may find fields of grain from unregistered stock that can well be certified as suitable for seed. This can be offered only as certified stock, not as registered stock.

WILL THERE BE A DEMAND?

The demand can be made. Minnesota requires for its own seed use the following:

<i>Crop</i>	<i>Ave. Acreage 1907-16</i>	<i>Seed per acre</i>	<i>Seed Required</i>
Barley	1,362,700	2 bu.	2,725,400
Corn	2,133,000	1/6 bu.	355,500
Flax	386,700	1/2 bu.	193,350
Oats	2,905,000	2-1/2 bu.	7,262,000
Rye	212,740	1-1/2 bu.	319,110
Spring Wheat	4,676,000	1-1/4 bu.	5,845,000
Winter Wheat	56,250	1-1/2 bu.	83,375
	11,732,390		16,784,735

This is a total of 11,732,390 acres of crop and requires a total of 16,784,735 bushels of seed. Assuming that the average yield of these grains would be approximately 25 bushels per acre it would require 4,196,184 acres in our state to grow seed only. This is equivalent to 52,439 acres per county, assuming that we have eighty agricultural counties. Again assuming that our counties average 20 townships per county it would mean 2,621 acres of approximately four sections of land for each township. Is it too much to assume then that at least two farmers in each township can be interested in growing pedigreed seed of one or the other of these grains? No account is taken of the need for grass seed, vegetable seeds, root crops and various other lines that can be worked into a special seed production business. A knowledge of the needs of our state in this line it would seem should inspire confidence and the question is not whether or not there will be a demand but whether or not the Minnesota Crop Improvement Association will rise to the opportunity and make for itself a real place in the educational and economic program for the development of the state's agriculture.

* * * * *

In previous chapters early periods are described. The reader will note that annual meetings as a rule, were held at various locations around the state. Since 1925 they have all been held on the agricultural campus. The development of extensive breeding research by modern methods by J. B. Hutcheson in 1914, H. K. Hayes, P. J. Olson, R. J. Garber from 1915 on through the early 1920's, and a closer association between Experiment Station research and the work of the Crop Improvement Association from about the time of Boss' paper were important factors in the development since about 1920 and the present time.

Another reason for reproducing Boss' speech is that it nicely represents one side of the only real controversy which officials and leaders of the Minnesota Crop Improvement Association ever had. Forty years afterward it is hard to see what the argument was about but it must have been quite severe because some personal animosity still lingers among the old timers. As we said, Boss' speech represents the viewpoint of one group, that is emphasis on certification and even closer ties with the experiment station. The other side believed strongly in the educational functions of the society as expressed in well publicized annual meetings at several locations around the state, in seed shows at the State Fair and at association meetings and in school programs. These activities were to be given more emphasis than breeding, distributing, and maintaining purity of improved crop plants and in complete integrated cooperation with the Experiment Station. The association performed all of them and continues to do so to this day. Witness the picture of the State Fair exhibit in 1922 and the more elaborate one pictured in Chapter VI.

In a letter which C. L. Blanchar wrote to Ralph Crim on April 21, 1950, he describes graphically how this controversy came to a head at the annual meeting in February 1921 at the Ryan Hotel, St. Paul. Each side had a candidate for president and after some intense cloak room cam-

One of the contributions to the 1922 Minnesota State Fair.





Mr. C. L. Blanchar, Sherburn, Martin County.

Ex-president of our Association, an enthusiastic, practical breeder of farm crops, especially Silver King Corn and Russian Green Oats. Mr. Blanchar has won many of the highest awards on his corn, and is the foremost breeder of Silver King. Our members are to be congratulated in having Mr. Blanchar as a director and guide of the Association. We can always depend on Blanchar at every meeting and show. (Caption from annual report.)

painging and dispute over rules of order the "certified seed" side won the election. From our viewpoint in 1963 both sides won because the efforts of all these sincere men have been translated into a growing organization of great benefit to agriculture and the commonwealth.

C. L. Blanchar was an enthusiastic crop improvement leader and vigorously supported the Experiment Station research. He had definite views regarding breeding methods and did not hesitate to challenge the statements of station trained personnel when he thought an idea wrong. Those who knew him said it was a pleasure to work with him and at this early date his contributions to crop improvement were of great value. His continued interest was evident throughout his active life.

A certification committee consisting of C. P. Bull, Andrew Boss, A. D. Haedecke, T. E. Odland, A. C. Cooper, and W. F. Tullar was appointed at the annual meeting held in the Ryan Hotel, St. Paul, February 24, 1921. At this meeting the association voted to adopt the regulations as published in the pamphlet "Inspection and Registration of Farm Seeds." In 1919 more than 60 growers had seed registered or certified. This pamphlet,

published in 1920, pointed out that the experience of livestock breeders had shown it necessary to have a system of registering whereby the buyer can feel certain that he is getting what he pays for. Also that the seller must have a price that will repay him for extra care in handling the crop. Any grower having an improved crop he desires to have inspected was asked to send an application to the secretary by June 1 or earlier. A printed form was available for this purpose.

It appears that this 1920 pamphlet was the first official set of rules for certification used by the association. Upon receipt of an application the secretary was to make arrangements for a qualified person to visit the field at an appropriate time (presumably when in bloom or in head). The grower was "required to convey the inspector from the depot to the farm and to return him again to the depot or to a neighbor also desiring inspection." At a second inspection a sample was to be taken consisting of 5 ears of corn and 1 to 4 quarts of other seed.

Three classes of seed were defined. *Pedigreed seed* was designated as stock from individual plants or groups of plants with a definite performance record. This was distributed by Experiment Stations and special growers through the Crop Improvement Association. *Registered Seed* was required to have passed field and bin inspection. For small grain it could not be more than three generations removed from a hand selected seed plot, such as pedigreed seed. *Certified Seed* was defined as high grade seed which had passed field and bin inspection but did not qualify for registered. The inspection requirements for registered and certified seed were spelled out in detail, including cleaning of separators.

A grower was issued certificates and printed shipping tags if his seed met the requirements. The tags were similar in appearance to those used today but there was no sealing and the grower certified that the seed conformed to the standards.

Fees were \$1 for membership, \$2 for field inspection, and \$2 for bin inspection, regardless of size of the field.

On the last page of the 1920 Inspection and Registration Pamphlet is a list of standard varieties. Corn was listed separately for southern, central and northern sections. All of the wheat, oats, barley, rye, soybeans, field peas, and most of the corn varieties were shown as being increased and distributed by the Experiment Stations and substations (ugh! we don't say substations now). This list was presented as the best known varieties available, but certification or even registration of other known types was not precluded. No doubt this compilation of standard varieties was the forerunner of the present day recommended list revised annually and distributed in Miscellaneous Report 24. At the annual meeting February 21, 1921, Andrew Boss used the term "varieties recommended for general use." He described how the central and substations conducted replicated tests and how the varieties to be grown for distribution are agreed upon in a general conference held each winter.

Thus we have established between about 1919 and 1921 a complete set of rules for certification, based on but not exclusively limited to, a list of

standard or recommended varieties. We will attempt to trace the progressive steps and changes in the rules and procedures as the years go by.

A. D. Haedecke (Daddy Haedecke to many of us who knew him) was elected assistant secretary in 1917. At the annual meeting February 24, 1920 T. E. Odland of the agronomy division was elected secretary. Professor Bull having resigned to go with the St. John and Bull Seed Company, Worthington. After a year at Worthington, Bull returned to St. Paul to take up the management of the weed and seed work with the State Department of Agriculture. He maintained an active interest in the association for many years after giving up his office as secretary.

Before he had finished his second term Odland left to become head of Agronomy at Rhode Island. Having filled out the unexpired term of Odland, Haedecke was elected secretary in 1922 and served through 1925.

After that Ralph Crim served as secretary for 2 years. Andrew Boss held the position 1929 to 1933, but Crim under the title of consulting agronomist carried most of the work load. In 1934 Ralph Crim was again elected secretary, a position to which he diligently applied himself until he retired from the University in 1953, the 50th anniversary of the association's founding.

The International Crop Improvement Association was organized in 1919. According to a "History of the International Crop Improvement Association" compiled by J. C. Hackleman in 1960, Professors Bull, of Minnesota, and Champlin, of South Dakota, sent an invitation to agronomists in Canada and in several north-central states to meet in St. Paul July 11, 1919. Attending were John W. Nicholson of Michigan, C. P. Bull of Minnesota, W. R. Porter of North Dakota; Garnet H. Cutler of Ontario, Manley Champlin of South Dakota, and both R. A. Moore and A. L. Stone of Wisconsin.

Quoting now from the minutes of that meeting, "Those attending the meeting indicated the great benefits that could accrue from a close relationship of associations so it was voted to hold another meeting on December 2nd in Chicago of the time of the International Grain and Hay Show." This meeting subsequently led to the organization of the International. Minnesota has always taken an active part in this organization.

World War I had a tremendous impact on agriculture as a whole and certainly on the members of the Minnesota Crop Improvement Association along with other farmers. At the 18th annual seed show December 16, 1921 the Honorable Sidney Anderson, Member of Congress, Minnesota First Congressional District, gave some pertinent figures. He reported that return to farmers for labor, risk and management (on a national average) was \$444 in 1913, \$1,456 in 1919, and had dropped back to \$405 in 1920. We know that it rose very slowly for 15 or more years after that.

At the same convention (December 14, 1921) Governor J. A. Preus said, "We know that prosperity will come again." He promised a federal income tax break for cooperatives. W. C. Coffey, then Dean of the University of Minnesota, Department of Agriculture, talked about "poverty in buying power," which of course many call overproduction. He pointed

E. C. Stakman, international leader in plant pathology, and joint leader with H. K. Hayes in a cooperative project for, "Breeding disease resistant varieties of farm crops from 1921-52 inclusive."



out that Herbert Hoover was asking for an appropriation of \$20 million to send grain and milk to Russia for a twofold purpose; relief to the starving Russians and financial relief to American farmers.

The year before annual meeting, February 23-25, 1921, at the Ryan Hotel, St. Paul, President C. L. Blanchar said,—"we see so many missing—. Times have changed and when you ask where the farmers are and put your ear to the wire, you will hear the S.O.S. Good ship agriculture is on the rocks,—and the farmers are not with us this afternoon.—the harder the times on the farm, the more important the work we are here for today becomes." This quotation expresses the difficulties first hand, besides it seems to be a challenge for the long hard pull that lay ahead even though Blanchar couldn't see the future.

In spite of the war and the economic upset that went with it the association continued to grow and thrive. Witness the list of accomplishments given by Haedecke in the secretary's report of December 15, 1921.

1. Published Fall Seed List.
2. Published Annual Program on Premium List.
3. Compiling annual seed list, which is to be published in January.
4. Membership increased from 334 in 1920 to 407 in 1921.
5. Sent out 9 monthly news letters.
6. Sent out 3,000 circular letters and 1,000 regular letters.
7. The executive board (C. E. Brown, Elk River; S. O. Mason, Redwood Falls; C. L. Blanchar, Sherburn; W. F. Tullar, Warren; C. P. Bull, Worthington; and C. H. Lien,

- St. Cloud, were executive members during that year) has held two meetings — April 6, 1921 and September 6, 1921.
8. The Minnesota Crop Improvement Association had charge of Minnesota Exhibits at the International Hay and Grain Show at Chicago. Minnesota Exhibitors won \$301.00 in premiums.
 9. Our association also took charge of the exhibits at the State Fair.
 10. Due to the poor crop year — our grain inspection work remained on a par with last year.

The educational meeting that year at the Court House in Minneapolis December 15, 1921 included an address on "Organic Matter the Keystone of Fertility" by Dean Alfred Vivian, Ohio State University. He said, "If you want to make the old farm fatter stuff it with organic matter." Professor George M. Briggs, Madison, Wisconsin used the title "Plant Soybeans." Discussing cultural methods and plugging for more acres, he apparently was well on the way to earn his nickname of Soybean Briggs. Because of his entertaining delivery he also came to be called a second Will Rogers.

H. K. Hayes talked on "New Developments in Field Crops." He pointed to the value of farm crops, over \$400 million in Minnesota, and outlined in some detail his up-to-date methods in breeding small grain. Dr. Hayes once told the writer that he "had very little following among the farmers when he came here in 1915." Apparently his breeding work was drawing attention in 1921, since he was called on to speak.

At the next annual meeting held in Crookston February 5-9, 1923, in conjunction with the Red River Valley Shows, E. C. Stakman of the Plant Pathology Division addressed the group for the first time. "Methods for Controlling Black Stem Rust of Wheat," was the title of his talk. He explained that rust is a living and a variable organism. Discussing methods of control he emphasized breeding resistant varieties in cooperation with Dr. Hayes.

Hayes for Agronomy and Stakman for Plant Pathology were joint leaders of an Experiment Station project, "The development of disease resistant varieties of crop plants," first outlined in 1921 and continuing today, even though both Stakman and Hayes have reached the age of retirement. Through many years other research workers in both divisions took part in the researches. For individual crops and diseases, project leaders in both divisions worked together with administrative leadership and inspiration furnished by Hayes and Stakman.

CHAPTER IV

Growth and Development of the New Function, 1924-1937

Resolutions, the Seed Grower, hybrid corn, quality seed, budget, premier seed growers, elevator managers, seed shows, membership.

At the annual business meeting held at University Farm January 20, 1926, a resolution was passed favoring the opening of the St. Lawrence Waterway for ocean going traffic to "bring more prosperity to the people in the interior of the country." Thus they supported a project which was to become a reality many years later. An increase of railroad freight rates was opposed.

Another resolution passed at that meeting deplored the action of the Appropriation Joint Sub-Committee and the Legislature in discontinuing the \$4000.00 annual appropriation heretofore given to the Minnesota Crop Improvement Association for its valuable work.

A. C. Cooper, St. Cloud, and C. E. Brown, Elk River, were elected honorary members of the society at the 1926 meeting. Possibly this was the beginning of the honorary seed grower award idea. Cooper, a farmer near St. Cloud, was one of the first strong, active men to promote the progress of the association. Brown, an extensive potato grower, was a prominent institute speaker throughout Minnesota on subjects pertaining to corn and potato growing.

The second annual field day of the association was planned to be held at University Farm in the summer of 1927. This may be a forerunner of the field day meetings at University Farm, Rosemount and the Branch Stations widely attended by crop improvement leaders and other farmers. These field days have been a strong stimulus for growing better crop varieties, the use of pedigreed seed and for improved methods in all phases of crop production.

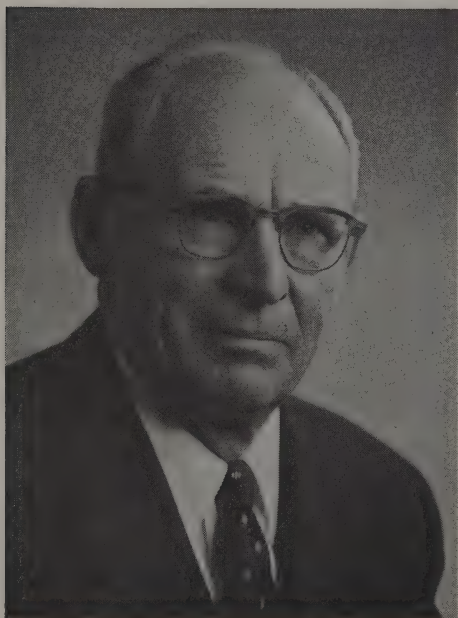
The Branch and University Farm station field days have as a major purpose the improvement of crop production methods. They are attended extensively by members of MCIA and a considerable part of the programs have consisted of crop improvement. Varietal tests show the latest and newest varieties and include both recommended, and not recommended.

Rod row materials and breeding investigations of many crops are ex-

plained including of course the primary purpose of the investigations to utilize disease resistance, combining ability, quality, and agronomic characters. Breeders seed increases and methodologies are explained and demonstrated. Exchanges of viewpoint including those of seed growers are of first importance. These are a part of the cooperative relations between Experiment Station, M.C.I.A., the Crop Quality Council, and commercial seed producers consisting of farmers and members of the larger seed companies.

In April 1928, the first issue of *The Minnesota Seed Grower* appeared. Issued bi-monthly from the secretaries office (more recently the managers office) and continued up to this time, it furnishes an accurate and complete record of all the activities of the association. Bound volumes are kept in the office of the manager. Copies are filed in the University Library on the St. Paul Campus and with the State Historical Society. In Vol. I No. 1 President John W. Evans, a progressive farmer near Montevideo, gave the new organ his official benediction and secretary Andrew Boss asked for contributions from members in order to insure two way communication with the officers.

H. K. Hayes presented an article on "Progress in Corn Improvement" in the fourth issue, October 1928. He described how inbred lines were produced and selected, pointing out that both parents were observed, rather than the female only. He described a double cross and pointed out that this required 3 isolated seed plots, one for each of the single crosses and a larger field for the double cross. In a recent visit to Iowa, he stated that he saw 60 acres being used for crossed seed. Such seed was being sold



John W. Evans, president 1926-1933. He is an enthusiastic supporter of Crop Improvement and a well known pure seed producer.

H. K. Hayes, world renowned Minnesota plant breeder, leader in crop improvement, and teacher at the University, 1915 to 1952.



for twice the price of open-pollinated seed. Several double crosses had been tested in central Minnesota for several years and increased yields of 15 to 20 percent over the better standard varieties had been obtained. Hayes (referring also to lodging resistance) stated "results indicate the great possibilities of the newer methods of breeding." It must be remembered that in those days hybrid corn was practically unknown by the general public, but at the present time practically no open pollinated corn is grown.

In the *Seed Grower* of December 1930 Hayes and Crim published a summary of state wide tests of crosses Ex I, Ex K, and Ex L, showing in the central part of the state increases in yield ranging from 7 to 25 percent above the varieties farmers were growing. Four hundred, 5-pound lots of double cross seed had been furnished through county agents, and farmers were asked to plant a strip through the center of a commercial field.

This extension work was under the immediate direction of R. F. Crim, Extension Agronomist. Others who took part in these first trials were H. E. Brewbaker, R. E. Hodgson and Hayes. Many people will recall that those hybrids had mixed yellow and white kernels because some of the inbreds came from White Dent varieties. Also they were rather short and were earlier in maturity than the corn farmers were growing. Many people made fun of them at first, calling them pop corn but the yield of dry matter per acre was very convincing. Once farmers became interested, hybrid corn increased very rapidly so that by 1940 one would be hard put to find a field grown from open pollinated seed.

Many progressive farmers still picked their own seed corn in 1930, and inquiries came to the Experiment Station about how to select and store it. Perhaps one lady had heard about the hybrids with mixed yellow and white kernels or perhaps she had some uneasy notion about sexual reproduction in corn because of the new publicity. In any case she wrote Dr. Hayes and asked whether yellow seed corn would cross with white corn if kept together in the same room upstairs!

We are indebted to Vern Immer of Jeffers, Minnesota, for the following first hand account of the organization and early deliberations of the Minhybrid Growers Association.

"Since the Crop Improvement Association was limited in scope and could not enter into the promotion and marketing of Minhybrid Seed Corn it was felt that a separate organization should be formed that would be allied to the Crop Association but independent in carrying out activities that could not be included in the program of the older Association. A group of Minhybrid seed producers from S. W. Minnesota got together in the fall of 1937 and discussed the possibility of forming a state Association. As I remember, this group included A. A. Riedesel, John Grathwohl, Carl Olstad, Henry Leitschuh, Henry Lau and myself, along with some others that met with us occasionally. A. A. Reidesel, John Grathwohl, and myself acted as a committee to draw up a proposed constitution and by-laws. We used a copy of the constitution and bylaws of the Minnesota Crop Improvement Association as a guide in formulating our thinking. We issued an invitation to other Minhybrid growers in the state to meet with us at U. Farm during Farm and Home Week in January 1938. It was here that the Minhybrid Growers Association was organized.

"When we organized the Minhybrid Growers there was considerable interest on the part of, and attendance by, the so-called larger producers in the State. They favored a more closely integrated organization to promote production and sales of Minhybrid Seed Corn. The smaller scale farmer producers were afraid that the bigger companies and producers would dominate and freeze out the small scale operators. They also did not wish to put too much money into an organization for promotion and quality supervision since they could sell their corn with little or no effort.

"For example, it was proposed that we set the membership dues for the new organization at five dollars; but one grower apparently expressed the view of the majority when he stated 'I am willing to spend one dollar for the privilege of shooting off my mouth, but I'll be darned if I'll spend five dollars.'

"Since the small scale farmer producers had the advantage of numbers, they dominated the organizational meeting and formed the Minhybrid Growers Association along the lines it was to follow for the next ten to fifteen years.

"In the first election of officers, Henry Leitschuh, Sleepy Eye, was elected president, Vern Immer, Jeffers, first vice president, and E. R. Henrichs, Redwing, second vice president. The first board of directors consisted of John Grathwohl, Fairmont, H. C. Lau, Tracy, Carl Olstad, Hanska, John Evans, Montevideo, Algert Peterson, Buffalo and Robert Hoffman, Grand Meadow.

"Whether or not the future of Minhybrid Seed Corn might have been different if we had had a little more vision and less jealousy and distrust of the larger producers, it is hard to say. Maybe it would have been impossible to work out an organization to include all groups and factions, and whether anything we did would have had much affect on the future course of events is open only to conjecture."

As indicated by Immer the Minhybrid Growers Association has not come up to the hopes which early organizers had for it.

In 1946 the Experiment Station corn committee established a policy of delayed release of selected inbred lines (3 years after a new Minhy-

brid was released the constituent lines were offered for sale to the public; these could be used in combination with other lines in open or closed pedigree or in any way the buyers saw fit). In 1955 the policy was changed to provide for simultaneous release of hybrids and inbreds, and the present policy adopted in 1956 allows for sale of any desirable inbreds regardless of hybrid combination.

Up to the present time the station has released 101 inbreds, 57 of which were originated from Minnesota material only. Of the 101 sold, male sterile lines were also made available for 23. It is impossible to say how much seed from these lines is being used by Minnesota farmers because a large part of it is sold under closed pedigree by seed companies. Thus they have exclusive right to the name, and are in a better position to spend money for merchandizing and promotion. This plan of release is not practiced with flax, small grain or forage crops.

The Minnesota plan of seed distribution for crops other than corn was officially announced by Ralph Crim in the *Seed Grower* of December 1928. He noted that there was a waiting list for purchase of new releases from the Experiment Station, many applicants being inadequately prepared in training and available equipment for increasing pure seed. The new plan provided that when a new variety was released county allotments would be made by an advisory committee of six men appointed annually by the vice-director of the Experiment Station. Approved growers for production of registered seed were to be selected by the county agent, extension agronomist, and the County Crop Improvement Committee. This latter committee also was to handle distribution of releases within the county. From the new releases approved growers would produce registered seed under a memorandum of agreement with the experiment station. All the regular requirements for certification had to be observed and the Experiment Station held an option on purchase of the seed, which they might or might not exercise. In either case the price to the growers for registered seed was established by the seed distribution committee of the experiment station.

The Board of Directors, with J. W. Evans, Emil Wagner, C. H. Lien, H. B. Abrahamson, Henry H. Olsgaard, C. L. Blanchar, A. A. Riedesel, H. K. Hayes, Andrew Boss, A. D. Haedecke, and Ralph Crim met at University Farm on May 28, 1930, and adopted a revised set of rules for registration and certification. Based on the regulations published in 1920 (shown on page 29, chapter III above) they were more detailed and explicit and also more strict in some particulars. There were some major changes, especially for corn.

Certification was permitted only when the crop originated from foundation, registered, or certified seed, and varieties eligible had to be on the recommended list. In the words of the report (*Seed Grower*, June 1930) "Exploited varieties and new varieties that have not been tested thoroughly will not be eligible for certification." Special permission had to be obtained in order to grow more than one small grain variety on any one farm. Roguing was considered essential. Bin samples representative of the

whole crop as ready for sale had to be sent to the state office of the association before December 1.

The detailed 1930 requirements for certification for small grain, flax, and forage crop seeds were changed very little from the 1920 rules, however flax growers were required to send in, by May 15, 2 ounces of their seed to be grown and observed in the plant disease garden at University Farm. Two completely new sections were added to the report. One was for corn produced by controlled pollination (hybrid), and the other pertaining to a seed corn sealing service for seed companies.

Provision was made for growing registered double cross seed, the two single crosses being grown in alternate rows and the female rows detasseled. New seed had to be purchased each year but other requirements for registered seed were followed as before. Sixty rods of isolation or a natural barrier was required. Hand pollination was suggested for registered single cross seed but this method never came into wide use outside the Experiment Station.

Increase plots of recommended varieties of all farm crops were grown annually at the central Experiment Station and branch stations, and offered for sale from the stations direct to seed growers.

Regarding the sealing service for seed companies, the association asked for a record tracing the origin of the stocks, a charge of 5 cents per bushel with a minimum charge of \$100, and approval of the stocks before seeding. Field and bin inspections were to be carried out as for any certification, and they would seal and tag all bags of seed as it was finally prepared for sale. This work was the forerunner of the present interstate or inter-agency certification program which has become a very important activity. For example over 8 million pounds of alfalfa was interstate certified or brought into Minnesota and recertified in 1961.

In 1928 it was ruled that all registered seed going out from the experiment stations be sealed. Sealing of all Foundation and Registered seed, regardless of origin, was required by vote of the board of directors in 1950 and this rule was extended to certified seed in 1956. Consequently sealing is now required for all classes of seed.

Ralph Crim was a consistent, vigorous plugger for top quality – varietal purity, freedom from noxious weeds and sound properly stored seed. He always deplored seed “peddlers” and unscrupulous deals, and he often used the *Seed Grower* to emphasize the importance of maintaining a good reputation for the association. In the issue of June 1928, he described his contact with a buyer of certified rye which was loaded with quack. Such mistakes must be “lived down” Crim said.

Another problem, perhaps a still more difficult one, which Crim dealt with was the matter of pricing. We quote him as follows from an article in the *Seed Grower* of October 1928:

“The price received by the certified seed grower is rarely if ever too high, quality considered. Check on prices – (of) – freak varieties sold after the ethics of the seed peddler. Why do people pay such fabulous prices to the seed peddler? The foundation seed stocks of our growers usually comes from the Minnesota Experiment

Stations at a fair price above ordinary seed grain. Many growers aim to get about the same price. Some become 'panicky' and cut the price if the seed does not move rapidly —.

"The Minnesota Crop Improvement Association is keeping in step with the forward movement in pure seed — the rules are being revised to meet higher standards of production and distribution. The member who does not comply with this spirit and development might as well fall out of the ranks — we must go forward."

Perhaps Crim had in mind the Minnesota Plan for Seed Distribution which he described above. There was a waiting list of applications in advance of release of new varieties, some of whom were not trained or experienced seed growers. The plan provided for distribution of registered seed to approved or selected growers. It was proposed to make county allotments of seed under the general supervision of an advisory committee of six members of the Experiment Station staff, appointed annually by the vice-director. Approved growers were to be selected by a committee consisting of the extension agronomist, the county agent and the County Crop Improvement Committee. The qualifications of an approved grower were that he must be willing to cooperate, have good clean land, storage facilities, and a previous satisfactory record. He was to produce registered seed for wider distribution as certified seed. Thus the registered class came into being.

At the annual business meeting in January 1930, a resolution was passed deploring "Growers Affidavit" seed, especially as it was being used on western-grown alfalfa purported to be Grimm; also radio advertising of "Bargain" seed of other sorts.

For comparison with figures which we gave in Chapter II for former years and with a typical present day summary to be given in Chapter VI, we reproduce on the following page the budget for 1929.

Something new was added to the winter State Seed Show in the spring of 1929, namely a utility class. Approved growers were to send in a peck of grain from fields which had passed inspection. This was to be representative of the seed they were offering for sale. "We feel that this is a great step forward and we hope will finally replace the old type seed show," Crim wrote. At the next winter show at University Farm, January 20-25, 1930, the top winners in the utility class were C. H. Lien, St. Cloud, with Glabron Barley; M. J. Norby, Lake Park, with Marquillo wheat, and Herman F. Skyberg, Fisher, with Anthony Oats.

At the annual dinner of 1929, held during Farmers and Homemakers Week, January 14-19, the first class of premier seed growers was announced. Recipients of the honor were —

Gust Tilberg, Fosston
H. C. Lau, Tracy
J. W. Evans, Montevideo
C. H. Lien, St. Cloud
C. L. Blanchar, Sherburn

C. A. Marsh
Ole A. Flaata, Fisher
A. A. Riedesel, Windom
H. P. Hanson, Albert Lea
F. E. Lindsley, Garvin

In preparation for the next annual selection, Crim published an outline of rules in the *Seed Grower* of June 1929. Anyone in Minnesota could

FINANCIAL REPORT OF THE MINNESOTA
CROP IMPROVEMENT ASSOCIATION

Balance January 1, 1929.....	\$ 3,482.06
Receipts January 1, 1929-January 1, 1930	
Membership Fees	\$ 770.50
Inspection Fees	2,842.63
Appropriation	4,000.00
Miscellaneous	312.28
	<u>7,925.41</u>
Total receipts	\$11,407.47
Disbursements January 1, 1929-January 1, 1930	
Salaries (Temporary Misc.)	296.60
Salaries (Permanent)	917.50
Printing and Stationery	593.07
Postage	273.75
Travel—Inspection Work	1,645.80
Travel—Meetings	521.71
Premiums for Crop Show.....	827.04
Special—Appropriation to Auxiliary (Crop Shows)	633.08
Office Supplies	490.13
Freight, Drayage, Telephone, Telegraph.....	22.23
Miscellaneous	<u>435.39</u>
Total Disbursements	\$ 6,656.60
Balance January 1, 1930.....	<u>\$ 4,751.17</u>

nominate an experienced seed grower. Nominations were to open June 15 and close July 15. The contest was sponsored by the Northwest Crop Improvement Association and supervised by the University of Minnesota. Important qualifications were listed as (1) record in seed production, (2) sales and advertising, (3) public service, and (4) weed control. The objective mentioned as the reason for making the selections was to stimulate wider interest in pure seed and improve the quality of Minnesota crops.

* The Northwest Crop Improvement Association was organized in the late 1920's by members of Agricultural Business firms in the northwest, with particular emphasis on the improvement of agriculture and with reference to solving problems relating to crop quality. Stinking smut was a serious problem in the twenties. This caused severe losses to the grower and caused heavy expense to the grain and milling industry be-

** This brief history of cooperation between the Northwest Crop Improvement Association, The Minnesota Crop Improvement Association, and the Minnesota Agricultural Experiment Stations was prepared, partly from memory, by Henry O. Putnam with the assistance of H. K. Hayes.*

cause all smutty wheat required washing and special treatment before milling.

A committee from industry was organized and funds were raised to combat the problem. The secretary of the committee, R. P. Woodworth, Woodworth Elevator Company, was an active leader. They soon decided to employ a crop specialist to lead in conducting an educational program, and H. R. "Si" Sumner was employed in the fall of 1928.

In addition to the smut problem which could be controlled by seed treatment, stem rust was a frequent source of great losses throughout the spring wheat area. Amber and red durum were grown extensively on large acreages in Minnesota, North Dakota, and South Dakota as the durums were at this time usually resistant to rust attacks.

Much of the hard red spring wheat seed provided by growers and elevators was mixed with durum. Sufficient attention by growers had not been given to the production and utilization of certified seed. At this time also seed from elevator sources often was rather badly mixed even though a certification program had been adopted in the early 1920's by the Minnesota Crop Improvement Association. Mixtures of red and amber durum with common spring was a source of difficulty that could be surmounted only by maintaining and growing high quality, pure seed free from admixtures.

The educational program instigated by Si Sumner was of great benefit to seed growers, county agents, elevator managers, and others, who were taught varietal identification of wheat classes. This supplemented work of the Schools of Agriculture, College of Agriculture, Experiment Stations, and Extension service.

Mr. H. R. Sumner, executive secretary of the Northwest Crop Improvement Association 1928-1943.



An extension conference was originated by Sumner who invited Extension Agronomists to meet and discuss crop control and production problems. Grasshoppers were a serious menace in the middle nineteen thirties, and Federal funds were raised to aid in grasshopper control.

"Si," in cooperation with Extension Agronomist, Ralph Crim, instigated the Premier Seed Grower awards in 1929. In the early days the Northwest Crop Improvement Association paid the cost of travel to the Annual Meeting and Banquet of the Minnesota Crop Improvement Association and the cost of the award plaques. The awards were made jointly by the University of Minnesota, the Minnesota Crop Improvement Association, and the Northwest Crop Improvement Association. As a rule leaders in Industry and appropriate University leaders alternated as Toastmaster at the annual banquet. Also the Executive Secretary of the Northwest Crop Improvement Association and the Extension Agronomist of the University alternated in presentation of the candidates and gave a brief history emphasizing their accomplishments, with particular attention to seed certification production.

It is worth mentioning that blanks were provided so that anyone interested could make nominations and that frequently a committee of members of the Northwest Crop Improvement Association, Minnesota Crop Improvement Association, and Minnesota Agricultural Experiment Station were members of the award committee. As a rule the Extension Agronomist and Secretary of the Northwest Improvement Association were members of this committee.

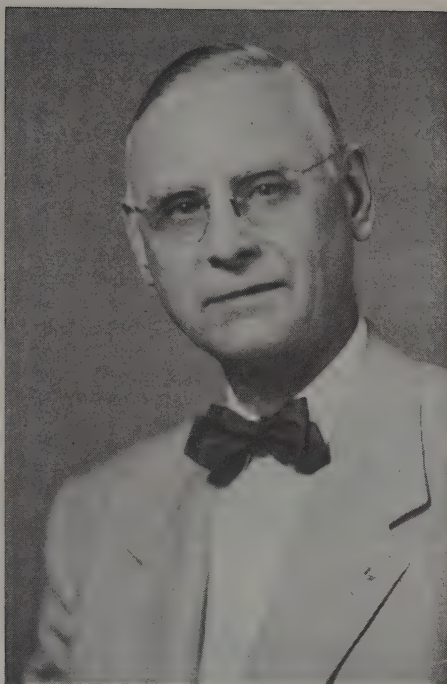
Prior to the organization of the Northwest Crop Improvement Association, research chemists of flour mills on their own initiative had made quality tests, particularly of new varieties. More extensive cooperative tests were initiated by joint effort of Sumner and members of the Extension Service and Experiment Stations, starting before the release of Thatcher in 1934. It is of interest that these early trials were not sufficiently long conducted so that Thatcher was approved by the milling industry. However, they did not disapprove the release of Thatcher but would only commit themselves to the extent of saying that so far as tested Thatcher's quality seemed satisfactory. One should note that the Minnesota Agricultural Experiment Station had made extensive tests in the Cereal Laboratory in Agricultural Biochemistry, during the preliminary period before seed increase, so that station research personnel were confident that Thatcher was satisfactory in milling and baking qualities.

Sumner served the Northwest Crop Improvement Association from September 1928, to April 1943. He was replaced by Henry O. Putnam in October 1943 who served until July 1960. Both of these active leaders played an important part in the development of close cooperation between seed growers, experiment station workers and leaders in agribusiness.*

At the end of the last chapter we are listing all the premier seed growers and seed companies honored through 1962. This includes also person-

* *End of material supplied by Putnam and Hayes.*

*Henry O. Putnam, Secretary of
Northwest Crop Improvement
Association from 1943-1960.*



nel of the Experiment Station who have been elected Honorary Premier Seed Growers. Andrew Boss was the first to receive this designation at the banquet on January 21, 1930.

In the spring of 1930 a seed train called The Minnesota Special was arranged and operated. Twenty-two counties in southern Minnesota were visited with average attendance of 600 people per stop viewing the exhibits. This large undertaking was sponsored through the cooperation of several agencies; The Omaha and Chicago, Northwestern railroads, the University of Minnesota, the U.S. Department of Agriculture, The Minnesota Seed Council, The Minnesota Crop Improvement Association, the various local communities and especially the Northwest Crop Improvement Association. This was one of the highlights in the educational programs of this period. (See page 44)

For comparison with earlier seed shows we will outline the premium list for the seed show held at University Farm January 19-24, 1931, in connection with the annual meeting. Awards were given for 90 lots; 28 of corn, 4 of pop corn, 9 of sweet corn, 3 of barley, 1 of flax, 9 of oats, 1 of rye, 5 of wheat, 5 of legumes and grasses, 1 of tobacco, and 20 in the professional class. In addition there was the utility show of registered and certified grain, 61 exhibitors in all. The varieties presented included Glabron, Belvet, and Trob barley; Anthony and Gopher oats; Redwing, Bison, and Buda flax, and Minturki winter wheat.

The secretary's report for 1930 (presumably prepared by Ralph Crim



Certified Seed
Is Safe Seed

Field & Bin Inspection
Is Your Protection

Published bi-monthly by the Minnesota Crop Improvement Association from the office of the Secretary, University Farm, St. Paul, Minn. Entered as second-class matter, April 2, 1928, at the post office at St. Paul, Minn. under the Act of March 3, 1879.

Vol. III

UNIVERSITY FARM, ST. PAUL, MINN., APRIL, 1930

No. 2

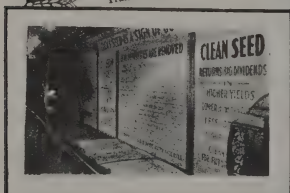
MINNESOTA SEED SPECIAL MEETS WITH FAVOR



Average Attendance Per Meeting Was Six Hundred



Train Was an Eight Coach Special



Interior View of Grading Car

Crop Improvement News, March, 1930

Nearly twenty thousand farmers were interested in studying the latest methods of efficient production of improved, quality grain as demonstrated on the Minnesota Seed Special. Twenty-two counties in Southern Minnesota were visited by the Special which was operated by the Omaha and Chicago, Northwestern railroads in co-operation with the University of Minnesota, the U. S. Department of Agriculture, the Minnesota Seed Council, the Minnesota Crop Improvement Association, the various local communities and the

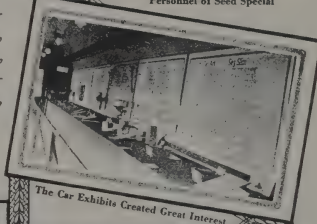
Northwest Crop Improvement Association.



Crowds Met the Train at Every Stop



Personnel of Seed Special



The Car Exhibits Created Great Interest



"Red Headed Girl" Contest at Marshall, Minn.

since he was carrying most of the duties for Andrew Boss) lists the number of members from 1920 to 1930. This gives a clear indication of the growth we are depicting.

Year	Members	Year	Members
1920	334	1926	680
1921	407	1927	586
1922	425	1928	638
1923	450	1929	890
1924	632	1930	855
1925	842		

In the same report, A. D. Haedecke, assistant secretary and treasurer, issued the following summary of certification work.

<i>Year</i>	<i>Number of Inspections</i>	<i>Certificates Issued</i>	<i>Bushels Certified or Registered Seed</i>
1921-22	277	241	54,551
1922-23	363	235	69,437
1923-24	506	294	62,785
1924-25	669	305	77,380
1925-26	633	281	88,637
1926-27	561	317	76,033
1927-28	774	413	141,586
1928-29	772	353	157,366
1929-30	1,202	914	218,400

Beginning in 1927 the association started a program of inspecting and sealing corn seed of known origin. During 1929-1930, 4,427 bushels of corn was handled in this way for the Farmers Seed and Nursery Company, Faribault.

During the 1930's there are several references to the depression. John Evans referred to "Farm Relief" in his presidential message published in June 1933. The Agricultural Adjustment Administration program started that year with the wheat allotments and the corn acreage control first attempted in 1934. When this work started Andrew Boss was in charge of it for Minnesota. In the Seed Grower of October 1933 he published an article under the title "Farmers Take Kindly to Wheat Allotment." Some counties are running as high as 90 percent sign up he said and ended with the statement, "Three million dollars will make a nice Christmas present for the wheat growers of Minnesota." They needed it that year with both a drought and a depression.

The Board of Directors approved the idea of listing authorized cleaning plants in August 1948. This involves inspection by a qualified representative of the Association. The objective was to facilitate a large volume of cleaning done on a high grade basis for farmers who did not have the required equipment.

During the period covered by this chapter there was an increasing interest in forage crops. This no doubt was in response to the overproduction of wheat and feed grains and the increased activity in soil conservation which was actively sponsored by the U. S. Department of Agriculture. The Agronomy Department started a new and larger project in forage crop breeding as well as new investigations in management of pasture and hay lands.

Mrs. Margaret Taarud, Principal Secretary of the Department of Agronomy and Plant Genetics aided in secretarial work of the Crop Improvement Society starting in the early 1930's, even during the period when August Haedecke was the official Secretary-Treasurer. She was the official treasurer of the Minnesota Crop Improvement Society from 1940 to 1953 inclusive. During many years Mrs. Taarud has been responsible for keeping Crop Improvement Records, issuing the required vouchers for travel and other expenses and greeting visitors on Crop Improvement

Days, thus aiding in many ways. This brief tribute to her many activities is in acknowledgment of her many aids to the Crop Improvement Society.

In the spring of 1937 Dr. H. K. Hayes returned from a year in China, and after a short discussion of agriculture in that country stated (*Seed Grower* April 1937) as follows. "We are fortunate in Minnesota to have such an active, well managed crop improvement organization. The close cooperation with you (i.e. members of M.C.I.A.) makes our work more interesting to us and much more worthwhile."

CHAPTER V

Increase and Major Changes in Personnel, 1938-1953

Expanding activities, Minhybrid growers, Folder 22, forage crops, seed shows, World War II, new buildings, seed laboratory, new certification rules.

In his secretary's report at the annual meeting January 20, 1938, Ralph Crim stated that the membership was holding steady since the low water mark of 1932. There were 513 paid up members for 1937. He further noted that 6,000 copies of the annual seed directory were distributed soon after the first of the year and that 912 samples had passed through the State Seed Laboratory during the season. The crops garden which Carl Borgeson had first established in 1936 was described. Lots of seed of small grains and corn sent in by growers were grown and examined for varietal purity. "Purity ran high as a whole and it was a splendid demonstration," Crim said. This was a new feature of inspection.

The Seed Grower of June 1938 carries the announcement of the death of August D. Haedecke, with a eulogy by C. P. Bull. "For modesty, integrity, loyalty to purpose . . . There never was a more perfect example," Bull said. In the preparation of such a history as this there is always the problem of how much prominence and how much credit to give to each of the many individuals who have made contributions. There is no problem in Mr. Haedecke's case however, simply because of our affection for him.

Haedecke was in charge of seed certification, seedstocks increase and sale for the Minnesota Crop Improvement Association. He had unusual ability for this type of work but was handicapped by lack of facilities and funds. He made many friends for the Crop Improvement work both on the University staff and among seed growers of the Crop Improvement Association. Employed by the agronomy division in 1916, he retired in 1935 and his duties covering both seed increases and certification were taken over by Carl Borgeson.

Borgeson is well known for his accuracy, dependability and honesty. He took good care of seed stocks and soon started making contributions to the columns of the seed grower.

On December 12 and 13, 1938, a hybrid corn grower's short course

was held at University Farm under the leadership of Dr. Hayes. "All phases of production of hybrid seed corn will be discussed. The major purpose of the short course is to insure the production and utilization of desirable hybrids," he wrote in the announcement.

Commercial seed company representatives met at University Farm on February 11, 1939, to plan cooperative hybrid corn field trials which had been carried on for two seasons before. This was, of course, the beginning of the very extensive Hybrid Corn Performance Trials which at the present time (1963) are being conducted annually by R. H. Peterson, E. H. Rinke and J. C. Sentz of the Experiment Station. In 1939 trials were held in Nobles, Watonwan, Sibley, Houston, Dodge, Meeker, Yellow Medicine, and Ottertail counties. Thirteen seed companies cooperated in 1938 and two more were added in 1939.

The *Seed Grower* for April 1939 has a rather complete description of the features of Folder 22, the list of recommended varieties for Minnesota. The requirement was, and still is, (1963) that recommended varieties must have been tested for at least 3 years in competitive trials. The list is revised annually by the joint approval (voice vote) of agronomists, plant breeders, plant pathologists at the St. Paul Campus and the scientific personnel from branch experiment stations. For many years, these lists have been followed carefully by members of the Minnesota Crop Improvement Association. One or two M.C.I.A. board members often attend the meeting.

During the 1930's we witnessed the continued rise of interest in forage



Henry Leitschuh of Sleepy Eye, president 1942-1947. Very satisfactory progress in crop improvement was made during his tenure.

crops. Bromegrass was becoming more popular and Northern Minnesota was spoken of as a center of legume seed production. It was estimated at a conference in Thief River Falls in November 1938 that Koochiching, Lake of the Woods, Roseau, Itasca, Beltrami, and Clearwater counties grew 86,085 acres of alfalfa seed and 98,823 acres of alsike clover seed. In favorable years a production of 3 to 3½ bushels of alfalfa seed per acre were obtained. During the late 1940's and early 1950's Minnesota's alfalfa seed industry was almost completely replaced by the production of certified alfalfa seed specialists on irrigated land in the western part of the United States.

An example of the increased interest in forage crops is contained in President Leitschuh's article titled "Good Pastures are Profitable" in the Seed Grower of August 1940. R. S. Dunham and Otto Swenson published on the same theme in the same issue. Dr. Hayes and H. K. Schultz established a forage breeding project in the Agronomy Department in 1936, there having been some selection work done previous to that.

The state seed show at the annual meeting in 1939 offered 487 prizes totaling about \$900. The association cooperated fully with the State Fair exhibits and seed show as it always has and still does. It also does its part for community and county fair shows. As an example, W. W. Brookins in 1938 published a survey of county fair premium lists and classifications, giving suggestions for uniformity and improvement. Minnesota has always taken her share of honors at the International in Chicago.

Below we have listed the program held in connection with Farm and Home Week, January 16-20, 1939, since it seems to be typical of the period preceding World War II.

Tuesday forenoon:

- Experimental Weed Farm at Lamberton. . . H. K. Wilson, L. M. Stahler
- Weeds Poisonous to Livestock. A. H. Larson

Tuesday afternoon:

- Farm Bureau Day Program

Wednesday forenoon:

- Quality Production. W. W. Brookins
- Blight and Scab. J. J. Christensen
- Root-rot in Cereals. E. W. Hanson
- Fertilizer Program. C. O. Rost
- History of Hybrid Corn. H. K. Hayes
- The 1938 Rust Epidemic. E. C. Stakman
- The County Elevator. W. J. Green

Thursday — Crop Improvement Day:

- Presidential Address. Herman F. Skyberg
- Objectives of Minnesota Hybrid Seed
- Corn Growers Association. Henry Leitschuh, President

Seed Companies Interest in Registered Seed.....	R. N. Bieter
The Genetic Basis of Crop Improvement.....	C. R. Burnham
Annual business meeting and banquet with an address by Dr. W. L. Burleson, Head of the Agronomy Department of the University of Illinois.	

Friday — Meadows and Pastures:

Obtaining Stands of Grasses and Legumes.....	R. P. Murphy
Grass and Legume Mixtures.....	H. K. Schultz
Alfalfa Wilt	J. J. Christensen
Clover Diseases	Lawrence Hensen
Pasturing Alfalfa.....	Bert Hanson

An article by President Herman Skyberg published in the *Seed Grower* of April 1940, outlines the problems and aims of the association. We quote from it in part. "The state is being overrun with an influx of varieties that do not carry the recommendation of the Minnesota Experiment Station . . . this is nothing new . . . every time we stand by and allow our neighbors to buy seed not adapted . . . we are affecting ourselves and our friends . . . I hope the time is not far distant when our association can play a bigger part in telling the public about the greater values from using pure seed of recommended varieties."

For many years C. L. Blanchar was an active leader in promoting better facilities for research and teaching. A legislative committee of the Minnesota Crop Improvement Association, with Blanchar as chairman, made many contacts not only with members of the Legislature and also with other agencies throughout the state to create interest in appropriations to furnish more satisfactory quarters for the Divisions of Agronomy and Plant Genetics and Plant Pathology and Agricultural Botany. The present division buildings were first occupied in 1941. Field Laboratory Buildings connected with the Agronomy Seedhouse were financed also by Legislative appropriations as requested and supported by the Minnesota Crop Improvement Association. Without the leadership of Blanchar and others the present facilities might have been long delayed.

Blanchar was ably assisted by John Evans who became chairman of the committee after 1940. Herman Skyberg, Henry Leitschuh, and Mr. Woodworth of N. W. Crop Improvement were also active in carrying information to the Legislature. Charles Simpson became chairman of the legislative committee in about 1952.

The *Seed Grower* of April 1937 published a list of resolutions by 10 different organizations around the state supporting the project described. Blanchar and his co-workers were very active in obtaining this support.

* * * * *

On December 7, 1941, the Japanese bombed Pearl Harbor. Those of us who listened to the radio that Sunday afternoon will never forget it.

Herman F. Skyberg, president of the association 1938-1941. He is presently a member of the Board of Regents of the University of Minnesota and has held that position since February 1949.



Again agriculture was directly involved in an even greater world war. "Food will win the war and write the peace," said Secretary of Agriculture Wickard. Surpluses were forgotten for a few years. Most activities were geared to the war effort. Perhaps the war acted as a stimulus to crop improvement work, although we have never known a farmer who wanted "blood money" (a war for improving farm markets).

* * * * *

Skyberg's presidential address on January 21, 1943, was keyed to food for victory. He reported that 1942 food production was 13 percent over the previous (1937) record and 27 percent above normal. He also noted the disposition over the years, especially 1941 and 1942, to tighten up on regulatory policies.

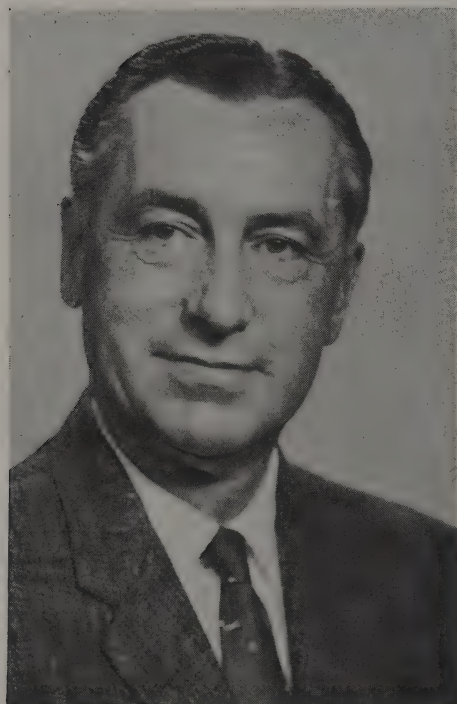
The *Minnesota Seed Grower* of April 1943 records the passing of H. R. (Si) Sumner, a prominent figure in the Northwest Crop Improvement circles. "Our company has suffered an irreparable loss," wrote L. J. Carlon, general manager of Peavey Elevators. Sumner was replaced in October 1943 as executive secretary of the Northwest Crop Improvement Association by H. O. Putnam, of St. Paul who was active in crop improvement until he retired in 1960. Putnam like Sumner had wide experience and was a forceful leader.

In December 1943 it was announced that no seed show would be held in connection with the annual meeting. Reasons given were that the regular Farm and Home Week was cancelled due to shortage of labor at home, inconveniences of travel (gasoline rationing) and the use of facilities at the University Farm for training soldiers. The annual meeting, program

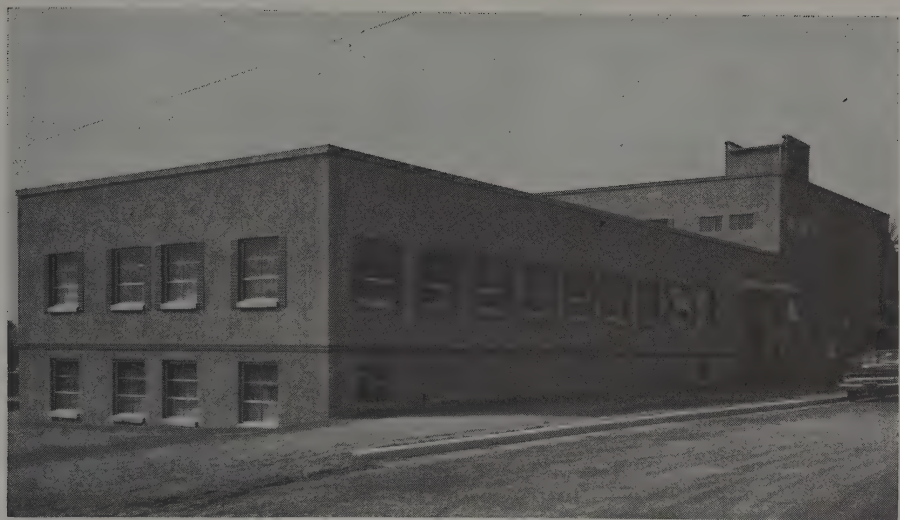
and dinner with the Northwest Crop Improvement Association were held. Members were advised to save their exhibits for the 1944 State Fair, provided the Fair was held! There were some efforts to revive the Winter State Seed Show during the war years, but it has not been held since 1942. Farm and Home Week was cancelled for only the 1 year and subsequently the regular Crop Improvement educational program and banquet have been held in connection with it.

In June 1944, Ward H. Marshall was appointed by the association to take over the seed registration and inspection. This came about because of the ever increasing work load, and freed Carl Borgeson, of the Agronomy staff, to devote his time to handling seed increases for the Experiment Station and teaching in the School of Agriculture. Both men are well trained and qualified in seed cleaning and handling. Thus a full-time man was employed by the association to supplement the work of the secretary and others of the University staff.

With the appointment of Marshall and the staff which he later assembled, the association became, to a much larger extent, financially independent of the Experiment Station. That is to say that with a manager and staff paid by association funds, they assumed a greater share of the work load and responsibility for the activities in education and certification. However cooperation between the two agencies continued to be close as ever.



Ward H. Marshall, appointed the first manager of the Minnesota Crop Improvement station, a position which he holds up to the present time.



Minnesota Crop Improvement offices and seed laboratory. Agronomy Seedstocks Building in background (Photo 1963).

The importance and value of a full time registrar soon became apparent. Seed certification problems were given the necessary adequate study. Because of outstanding leadership in all phases of seed certification and other crop improvement problems the title of Ward Marshall was changed to manager in 1957 by the Board of Directors and duly approved by the association.

In October 1946 Albert Flesland, seed analyst, was added to the Crop Improvement staff to establish a seed laboratory supplementary to the state laboratory cooperation and to help with field inspection. In December 1947 another full-time employee was added to Marshall's staff in the person of Allen A. Virta, assistant seed analyst.

Dorothy M. Gilmore has served as head secretary in Marshall's office since 1951. Miss Billie Chicquette previously also gave faithful, reliable service in this capacity, having started as Crim's secretary in 1943. Margaret W. Taarud, secretary in the Agronomy Department performed the duties of treasurer 1938 to 1953, since that time a seed grower has been elected treasurer with Miss Gilmore as assistant. A staff of two or three clerk typists help with the office work. Both Miss Chicquette and Mrs. Taarud were employed part time by the University and part time by the association. The others are full time association employees.

The appointment of Marshall allowed Borgeson to expand his activities to maintain breeders seed of recommended varieties and to direct the program of producing registered seed. These duties for corn included the increase and sale of seedstocks of inbred parents and single crosses used at first primarily by Minhybrid varieties. Later the inbreds and single



Inspection of a field of certified oats.

crosses produced by Station research have been used by seed growers as a basis for one or more parents of closed pedigree hybrids.

The work of pure seed increase was carried out by means of a seed revolving fund. At one time the fund was in the red to the extent of \$10,000 and as Department Chief, Dr. Hayes was turned over to the tender mercies of Comptroller Middlebrook. For hybrid seed corn increases one parent became mixed and only a part of the seed produced could be increased for use in seed plots. As seed was purchased through contract with seed growers, and seed sales were greatly reduced, the seed of the other parent that was on hand could not be sold. Comptroller Middlebrook appreciated the difficulties and supplied \$10,000 to the Fund which was paid back the following year.

In 1945 sufficient seed was produced for 14,000 acres of double crosses and at this time \$70,000 above expenses was made available. Because of the importance of this activity it was decided to build and equip an Agronomy Seedstocks building at a cost of \$60,000.

Several years later with the approval of the Administration, including Comptroller Middlebrook, \$28,000 from the seedstock funds were made available for the construction of an adjoining unit to house on the campus the offices and laboratories of the Minnesota Crop Improvement Association.

Also at about this same time, a cold storage seed room with both temperature and humidity control was built adjoining the Agronomy Seedstocks Building from funds available in the seedstocks revolving fund.

This makes possible the storage of pure seedstocks for many years without great loss in germination power.

Improvements in the rules for certification were added year by year until in 1950 the directors adopted some comparatively sweeping changes based on extensive discussion here in Minnesota and at the International Crop Improvement meeting in December 1949.

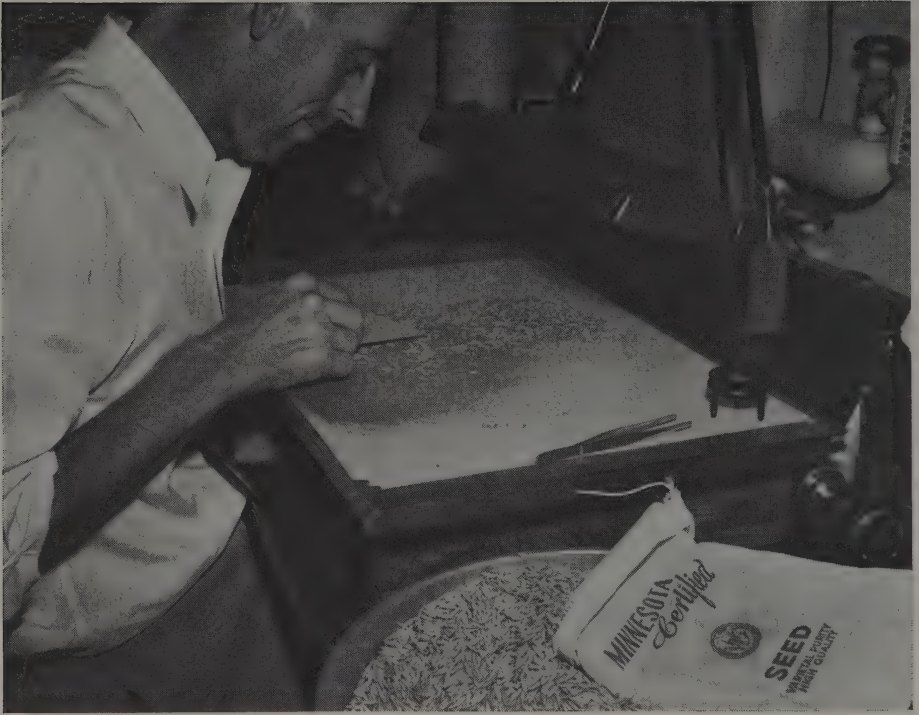
This new procedure is outlined under the following main points.

1. Breeders seed is original small lots of hand selected seed produced by experiment station or private breeders.
2. Foundation seed will be produced under control of the Minnesota Agricultural Experiment Station.
3. Registered seed production to be maintained by a limited group of highly selected growers.
4. Certified seed production to be unlimited except in the case of new introductions, where seed will be allocated to approved growers.
5. Certified seed producers must use only registered seed and registered seed producers only foundation seed.
6. Recertification of certified seed is not permitted.

There were, at first, some objections to these new rulings but they have been retained and applied successfully. This was another step in the direc-



Seed storage room in the Agronomy Seedstocks Building. Temperature is held at about 45° F. and relative humidity at approximately 45%.



Orris Shulstad inspecting a sample of oats in the laboratory of the association.

tion of making high quality and especially varietal purity available to seed buyers.

Total disbursements for 1948 and 1949 were about \$65,000 annually, which when compared with the \$6,656 spent in 1929, gives a picture of the continued expansion of association services. There were 1,849 members in 1950.

In 1950, friends and co-workers of Andrew Boss published a volume dedicated to his memory. Although not long intimately connected with the association, he made a big contribution to it when he was secretary. He was actively interested in crop improvement during most of his life although other duties prevented close association with details. His influence as an interested administrative leader when Chief of Agronomy and Farm Management and when Vice Director of Minnesota Agricultural Experiment Station was of untold value. He passed away in 1947.

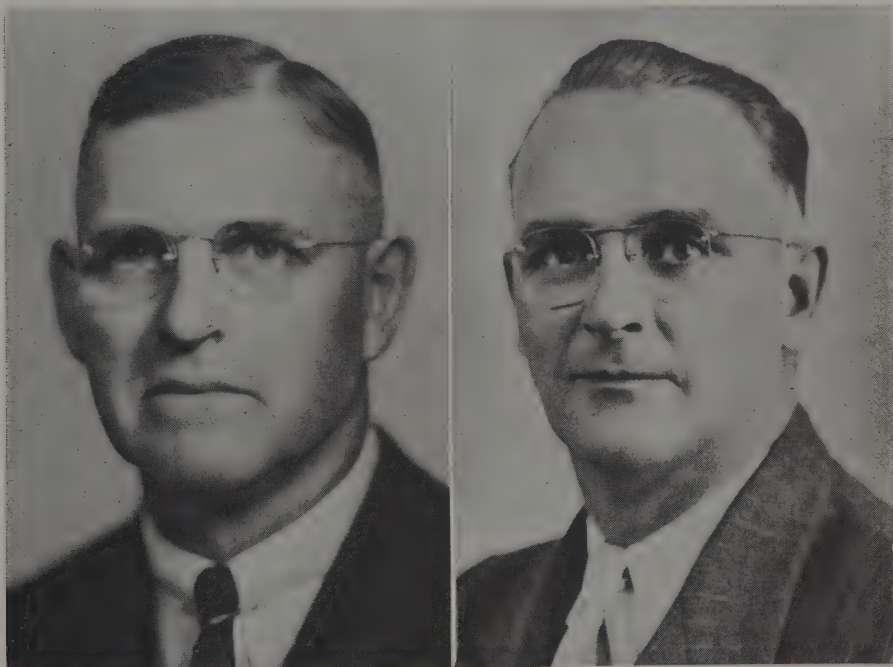
In the next few years, there were several more changes in personnel, not only of full-time employees of the association but also of experiment station workers closely allied to Crop Improvement work.

In May 1950, Mervin Syverson became assistant seed analyst with Flesland. A graduate of the College of Agriculture, he had been an employee of the State Seed Laboratory.

Orris H. Shulstad was added to the staff on January 1, 1952, Albert Flesland having resigned the previous October. Flesland went with the U. S. Division of Seed Verification. Shulstad, who is still with the association, has a farm background and an agricultural college Bachelor of Science degree. During his student days he was employed in the State Seed Laboratory. Roy L. Thompson served for a short time before becoming Station Agronomist at Morris. In June 1952 Howard C. Abraham was added to the full-time staff of the association. All of these men are well qualified by training and aptitude for seed certification work.

In June 1952 Mervin Syverson moved his headquarters to Olivia, where he started a new approach for the association, that is to have men located in strategic areas to take care of field inspection and promote educational work.

July 1, 1952, saw Dr. Will M. Myers take over as Head of the Agronomy Department, Hayes having retired. Myers wrote the following about his predecessor "Minnesota has lost the services of a man who has devoted his lifetime to the betterment of Minnesota agriculture and who, in the course of his work, became known as the outstanding plant breeder in the world. Our state has had the benefit of a whole series of improved varieties, of oats, wheat, barley, flax, and other crops. His work was basic to the development of hybrid corn."



Ralph F. Crim, secretary of the Association, 1926-1953.

Charles V. Simpson of Waterville, president 1948-54.

As if to cap the climax of the inroads of time, both Crim and Stakman retired in June of 1953. Stakman was hailed as an "educator, scholar, and practical but broad-visioned scientist" by one of his assistants, Laura M. Hamilton. H. K. Hayes described him simply as "intelligent." The plant disease work which he fathered has saved many millions of dollars for Minnesota crop producers. In a recent address Dr. A. L. Moseman, Agricultural Director Rockefeller Foundation, and a former student here, says that without doubt he can get off a plane in almost any large airport in any country of the world and be enthusiastically greeted by one of his former students or co-workers.

Crim carried the secretary's duties for over a quarter of a century and the organization was such that the secretary had the greatest work load of any officer. In fact, the secretary was the executive manager of the association and its affairs, until Ward Marshall was employed in 1944. Through good years and bad, drought or flood, high prices or low, Crim was serious, diligent and faithful to the farmer's welfare. He was dedicated to all phases of crop improvement and responsible in large measure for the success of the society. He passed away on April 28, 1960.

Charles V. Simpson of Waterville was President of the Minnesota Crop Improvement Association from 1948-54. Like others before him he was an outstanding producer of certified seed and an excellent leader of the association. He gave unstintingly of his time. His period of leadership was one of progress in all phases relating to the production of quality certified seed.

Seeds are ever a positive and creative force. Seeds are the germ of life, a beginning and an end, the fruit of yesterday's harvest and the promise of tomorrow's. Without an ample store of seeds there can be no national treasure, no future for a Nation. We quote from the Yearbook of the U.S.D.A. 1961.

Certainly it is still more important that this treasure store be certified, genetic quality, and purity. There is no substitute for a reliable certifying agency.

CHAPTER VI

Continuing Growth in Scope and Extent of Activities, 1954-1963

Increasing membership, certifiable list, staff changes, advertising program, legal certifying agency, seed distribution problems, State Fair exhibits, international here, Crop Quality Council, seedstocks work.

In Chapter IV we showed annual membership numbers for the years 1920 to 1930 inclusive. At this point we will bring the listing up to date. Although total membership does not in itself show the overall growth of the organization it is a clear indication of the increase in activities. Surely every member makes some contribution.

NUMBER OF PAID UP MEMBERS

<i>Year</i>	<i>Members</i>	<i>Year</i>	<i>Members</i>
1931	488	1947	2952
1932	294	1948	3013
1933	255	1949	2088
1934	380	1950	1849
1935	536	1951	1420
1936	507	1952	1344
1937	513	1953	1244
1938	520	1954	1453
1939	726	1955	2068
1940	607	1956	1893
1941	565	1957	1727
1942	672	1958	1789
1943	507	1959	1530
1944	726	1960	1537
1945	920	1961	1413
1946	1341	1962	1475

During 1962 there were over 800 certified seed growers, slightly less than 60 percent of the membership. Over the years this percentage has varied between 50 and 75.

For comparison with the budget of \$40 in 1905 and the \$11,000 handled in 1929, we reproduce the 1961 budget below.

These figures, when translated into activity, give a picture of the scope

Report of the Finance Committee

STATEMENT OF ACCOUNTS FOR THE YEAR 1961 OF THE MINNESOTA CROP IMPROVEMENT ASSOCIATION

B. G. Enestvedt

RECEIPTS

State Appropriation—July 1961	\$ 2,500.00
Membership Fees	1,410.00
Field Inspection Fees	60,181.69
Laboratory Fees (Net of Refunds).....	6,812.88
Seals, Tags and Wires.....	30,544.81
Sealing Service	759.89
Sampling Service	2,641.99
Seed Cleaning Plant Inspection.....	1,056.00
Tickets M.C.I.A. Banquet	1,316.50
Crop Quality Council-Share of Banquet Expense....	167.20
Advertising Mats and Roadside Signs.....	18.00
Interest	2,073.86
Barley Survey (Net of Disbursements).....	732.90
Miscellaneous	2,204.41
Total Receipts	\$112,419.23

DISBURSEMENTS

Salaries—General	56,325.05
Field Inspection	8,274.26
Sealing Service	158.77
Sampling Service	2,465.44
Seed Cleaning Plant Inspection.....	758.42
Seals, Tags, Wire and Bags.....	6,742.43
Meetings Expense	8,315.19
Educational	9,477.71
Premiums and Awards	515.51
Annual Meeting and Banquet.....	1,730.55
Printing and Stationery	448.78
Postage and Express	2,015.09
Office Supplies and Equipment Repair.....	1,693.79
Equipment Purchased	214.12
Building Maintenance	344.07
Telephone and Telegraph	500.56
Insurance	357.78
Payroll Taxes	3,569.12
Hospitalization	858.69
Dues, Books and Periodicals	454.00
Accounting Service	175.00
Employment Service	734.50
Cancellation—Unused State Appropriation	168.75
Miscellaneous	319.76
Total Disbursements	106,617.34

Excess of Receipts over Disbursements.....	5,801.89
Cash and Fund Balances, January 1, 1961.....	94,350.75

Cash and Fund Balances, December 31, 1961.....	100,152.64
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CASH AND FUND BALANCES DECEMBER 31, 1961

Restricted Cash in Bank (Barley Survey).....	\$ 640.00
Unrestricted Cash in Bank	28,970.31
Unexpended State Appropriation	710.50
U. S. Treasury Bonds and Bills.....	59,831.83
Certificate of Deposit	10,000.00
Total	100,152.64

Prepared from the Association's records of recorded receipts
and disbursements without external verification
by Wilkerson, Guthmann and Johnson, C.P.A.'s.

and volume of the benefits to Minnesota agriculture the modern day association is providing. As well as being the principal authentic source of clean seed of known pedigree, a hard to measure but certainly large contribution to agricultural education is evident.

In this history we have not attempted to describe the activities of the

county and area group associations. Not because this grass roots part of the association isn't extremely important but rather because the information is scattered and hard to gather without considerable expense. It is hoped that some of the leaders in county groups will prepare writeups from their minutes and place them on file in the headquarters office of Ward H. Marshall.

From the point of view of membership in 1949 and number of counties included the Red River Valley Crops and Soils Association is the largest branch association. Membership in this group numbers 380 and includes 13 counties of northwestern Minnesota. Other county groups include Brown, Cottonwood, Faribault, Goodhue, Kanabec, Lac qui Parle, Lincoln, Lyon, Martin, McLeod, Mille Lacs, Murray, Nobles, Redwood, Renville, Roseau, Rock, Scott, Sherburne, Sibley, Steele, Swift, Todd, and Yellow Medicine. The largest single county membership is that of Renville with 120 members. Yellow Medicine is second with 118, and Redwood third with 117. A group centered in Williams, Lake of the Woods county, is currently being reorganized.

In his presidential address at the annual business meeting on January 14, 1954, C. V. Simpson emphasized the importance of quality seed. "There are no short cuts in the production of quality certified seed," he said. He also pointed out that the new program of limited generations was continuing to show progress.

In the March issue of the *Seed Grower*, Ward H. Marshall, association manager, reviewed the new certification plan and pointed to some additional changes adopted by the board on September 4, 1953. These modifications were: (1) Starting with the 1954 crop two generations of certified seed were permitted. However, both classes of certified seed (i.e. first and second generation) were to be identified. (2) The second important change was an expansion of the list of varieties eligible for certification. Although for many years the association had a rule in effect that any variety approved by the society or a representative committee was eligible for certification, for the most part only varieties recommended for Minnesota conditions by the Experiment Station had been certified. At this time, a list of certifiable varieties was established and is being continued at present. The board had two main objectives in mind. First, certification of promising varieties is possible without awaiting the outcome of a 3 year testing program. Second, growers are encouraged to produce certified seed in demand out-of-state but not recommended for Minnesota conditions. It is required that when seed stock from out of state is planted, certification tags must accompany the application for field inspection and a seed sample must be sent to the association seed laboratory for approval prior to planting. The Minnesota Experiment Station may or may not maintain seed stocks of out-of-state varieties not recommended for Minnesota commercial production.

In 1954 there were nine oats varieties, two flax varieties, one of soybeans and two of spring wheat that were eligible for certification although not on the recommended Experiment Station list. The list has been in-

creased until, in 1962, 25 varieties were on the certifiable list, in addition to the 51 which the experiment station recommends.

In June 1954 two new men were added to the field supervisory staff of the association to extend and augment the good work which Mervin Syverson had been doing at Olivia since 1952. These were Robert J. Lambert to be headquartered at Crookston, and Richard A. Johnson, stationed at Waseca. Both men had a background in training and experience in agronomic work. This brought the full time staff of the association to eight, including the manager Ward Marshall, Howard Abraham and Orris Shulstad in the seed laboratory, the three field men mentioned above and a clerical staff of four. Several members of the agronomy staff have, of course, worked closely with the association through the years, especially the secretary and seedstocks man. Carl Borgeson filled both of these positions in 1954, but Rodney A. Briggs was elected secretary in 1956, succeeded by Harley J. Otto in 1959.

Richard Johnson served for nearly 2 years until he joined the armed forces and was replaced at Waseca by Russell D. Sawyer. Johnson also was employed for a short time after he returned from the service. During 1957 other changes brought Robert Lambert into the agronomy seedstocks work, shifted Sawyer's headquarters to Owatonna and saw Mervin Syverson promoted to education specialist. Frank N. Fanberg took over as field supervisor in northwestern Minnesota and Duane M. Smith was employed to help in the association's seed laboratory.

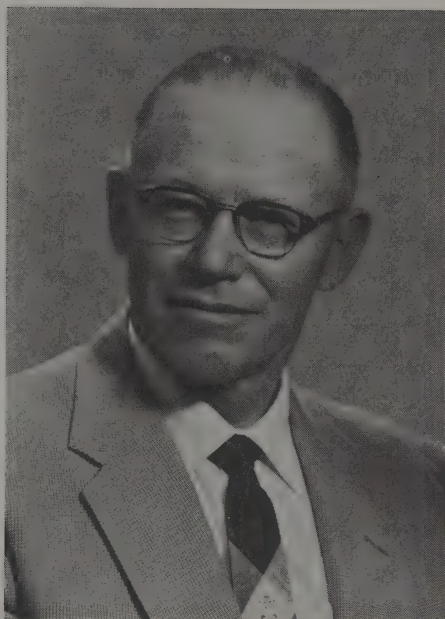
Professor A. C. Arny, a long-time friend of the association, passed away on May 22, 1957. He started work at the University in 1909 and served until his retirement in December 1945, being in charge of the farm crops work from 1914 to 1927, when the present Agronomy and Plant Genetics Department was formed. Always a booster for better crops he spent a lifetime of hard work for the improvement of Minnesota agriculture.

The Department of Agronomy and Plant Genetics and the Minnesota Agricultural Experiment Station (including U.S.D.A. personnel) work so closely with the crop improvement work, and so closely with the association that it is sometimes difficult to separate their functions one from the other. The Crop Improvement Association is a separate organization, however. Both are dedicated to the welfare of the state and union, especially through better crops and better seed.

Another "first" in activity was inaugurated when *The Farmer* magazine of October 2, 1954 carried the first of a series of advertisements. Simultaneously the second annual radio program called "Up to the Minute" was broadcast over WCCO at 9:00 each Sunday.

In the *Seed Grower* for April 1955, Dr. W. M. Myers, head of the Agronomy Department and a member of the executive committee of the association, described some new features and policies on seed distribution. Under the new certification plan, there had been built up a surplus of registered seed where actually the farm need was for a greater volume of certified seed. This was to be corrected by building up a supply of regis-

Frank L. Mitchell, Canby, president 1955-1960.



tered seed as well as foundation, before release by the Experiment Station. Secondly, by making greater use of county committees in distribution of new releases. It was thought undesirable for a few growers to monopolize the first increases.

The fifty-ninth Legislature, meeting in the winter of 1955, amended the State Seed Law to provide for an official certifying agency, and the Minnesota Crop Improvement Association was so designated. Thus after 52 years of her history and common acceptance of her hard-won rightfully deserved role, the association was given official sanction. From this time on, it has been unlawful to sell agricultural seed in this state and claim certification unless it is processed and labeled in compliance with rules of the association.

The case for good seed is such a strong one that it hardly needs repeating or emphasis in this narrative about the life of the Minnesota Crop Improvement Association. However, we couldn't resist reprinting the following little story by L. E. Everson. This appeared first in the March 1955 issue of *What's New in Crops and Soils* and was printed again in the August 1955 *Seed Grower*. Everson, formerly a student of the University of Minnesota, received his Ph.D. in agronomy in 1950 under the advisorship of R. S. Dunham.

ARE YOU SURE IT'S GOOD SEED?

By L. E. Everson

Don Johnson is a capable Iowa farmer, but his experience in buying bargain seed is something that can happen to anyone.

Mr. Johnson's story begins with a stop at his own local seedsman's place of busi-

ness. He intended to buy 800 pounds of red clover seed. Then he found that for labeled clear-tag seed, 99.85 per cent pure and 95 per cent germination, the price was 65 cents a pound.

Mr. Johnson had heard that a farmer in a neighboring county was selling "good" combine-run seed at a bargain price. He let his local dealer know that 65 cents was too high, and he made a round trip of 160 miles to the next county to get a "bargain."

The combine-run seed had not been tested or bagged. It was "in the dirt," but it was "good seed." The price was 55 cents a pound. Mr. Johnson didn't have any way of knowing the purity or germination, but he bought 1,000 pounds instead of 800 (a little extra because he was getting it cheap).

The next day, at a county extension meeting, he was telling the county extension director about his "buy." The county extension director was skeptical and advised him to send a sample of his seed to his college seed laboratory.

Mr. Johnson did, and here's what he learned. The percentage of pure seed was 83.50, the germination percentage, 60. Of his 1,000 pounds, only 500 pounds was pure live seed. The rest was seed which would not grow, other crop seed, inert matter, and worst of all, primary and secondary noxious seed — 54 Canada thistle and 108 horse nettle seeds per pound.

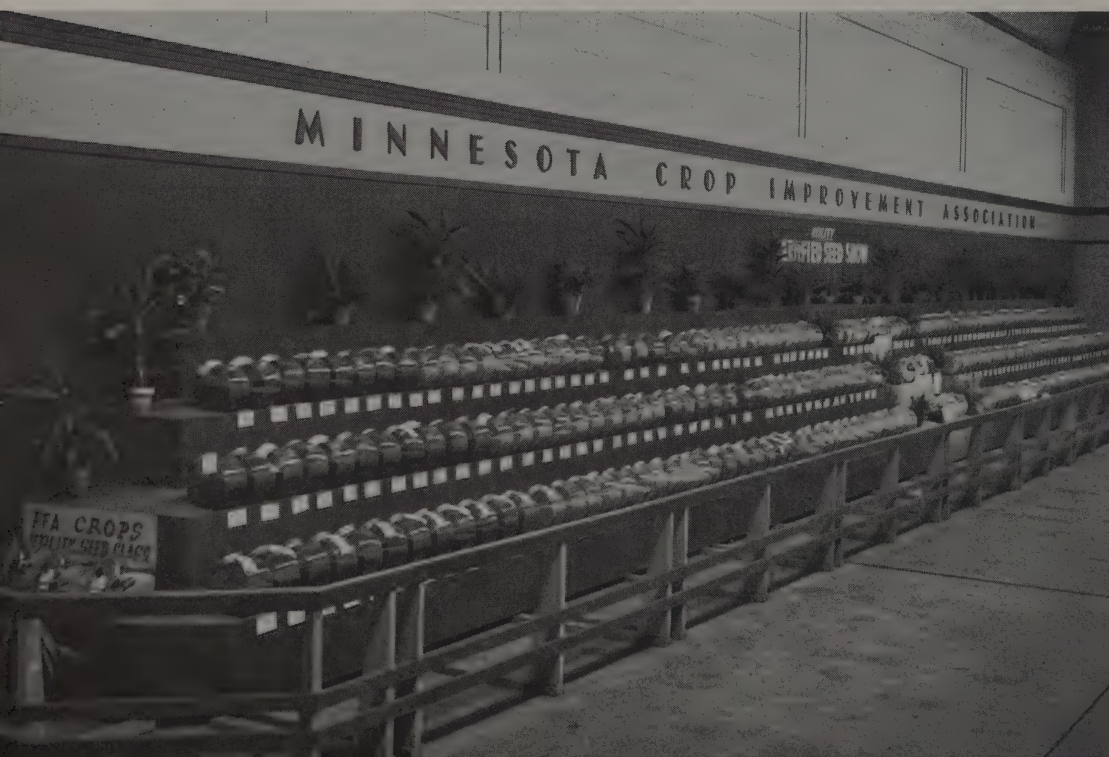
He paid 55 cents a pound for his 1,000 pounds of "bargain," but the pure live seed in it cost him \$1.10 a pound. What his local seedsman had to sell would have cost him 68 cents per pound of live seed.

This is not a case for buying from your local seedsman. It is a case for insisting that the seed you buy be tested, and that the seller be able to provide you with information about the test. A seed test made by a reputable seed testing laboratory is the only reliable way to determine seed quality.

* * * * *

Starting with the 1956 crop, it was required that certified seed be bagged directly from the cleaning plants; which was the same ruling previously in effect for the foundation and registered classes. Under some

Utility Seed Show at Minnesota State Fair in 1960.





A part of the Minnesota Crop Improvement Association exhibit at the 1954 State Fair. The attractive panel is 80 feet long.

conditions, specified by the board, a second year of certification is permitted and this may be handled in bulk. It turned out that 1955 was a banner year in seed certification with a grand total of 1,133,053 bushels certified and the laboratory processed 6,180 samples of small grain, corn, soybeans, flax, and small seeded legumes. A high water mark at this time, this volume was exceeded in 1958 (see chart in Chapter VII).

Exhibits at the 1956 State Fair were also outstanding, especially the utility seed show. A grand total of 454 samples were shown, 232 utility certified, 130 amateur and 22 professional exhibits. The association display drew a lot of attention from visitors.

The same high standard has been maintained every year, as illustrated by pictures from the 1954 and 1960 exhibits.

During November 4-8, 1957, the meeting of the International Crop Improvement Association was held at the Lowry Hotel in St. Paul. This was the first time that Minnesota hosted the international group, although as described in Chapter III, C. P. Bull was instrumental in its formation in 1918 and many of our men have contributed to its activities. Ward Marshall served as a director of the International from 1955 to 1961. Since then the position has been held by Harley J. Otto. At the St. Paul meeting Carl Borgeson presented a paper on "Purified Seed Should be a Selling Point." Walter T. Adams of Seldon-Watts Seed Company, St. Paul, and secretary-treasurer of the Minnesota Seed Dealers Association, talked on the need of cooperation between certified seed growers and the seed trade. "Where Do We Go From Here in Seed Certification" was the title of a

talk presented by Professor W. M. Myers, head of the University's Department of Agronomy and Plant Genetics.

Because of his experience and worldwide knowledge of crop production, Professor Myers is well qualified to discuss this subject, therefore we will recapitulate his main points. As the reader knows, the Association has never been a static rigid organization but has always changed and improved with the times. Perhaps, although he denies being a prophet, Professor Myers' remarks will give us some inkling of what the future has in store:

Ideally 20 to 30% of the self-pollinated crops and virtually 100% of the open-pollinated seed sown should be certified, but actually the percentages are 6 to 8 as a national average. We need more improved varieties and more money for plant breeding programs. The Association is doing an excellent job of advertising, educating and promoting, however, it is at the point of merchandizing and marketing individual lots of seed that the weakest link is found. One farmer working alone can not compete with modern high pressure merchandizing methods which we see on every hand.

Myers suggested two possible solutions, (1) marketing of certified seed by the established seed trade, or (2) establishment of new marketing organizations to sell certified seed.

In *Crops and Soils* for April-May 1960, A. A. Johnson of Cornell University talked on the same theme. His article was reprinted in the *Seed Grower* for August of that year. He pointed out that new sales methods must be developed, that a good producer can seldom be a good salesman too, and that price cutting hinders rather than increases the use of certified

Will M. Myers, chief of the Department of Agronomy and Plant Genetics since 1952 and member of the executive committee of the Minnesota Crop Improvement Association. Professor Myers has held several positions of responsibility in state agricultural colleges and the U.S. Department of Agriculture. He has traveled to many parts of the world as a representative of the Rockefeller Foundation and several other agencies. In 1951 he received the Minnesota Outstanding Achievement award and he has been honored with the Stevenson award from the American Society of Agronomy.



seed. This is because each person or group in the system (producer, wholesaler, transporter, and retailer) must make a legitimate profit or the whole system breaks down.

It is of interest to look at some Minnesota figures in regard to Dr. Myers' point about the low percentage of seed used that is certified. Carl Borgeson published, in the *Seed Grower* for April 1961, some accurate estimates of seed needs for Minnesota of several farm crops. In the following table these are compared with the volume of Minnesota grown certified and registered seed.

Crop	Minnesota 1959	Minnesota 1958	Percentage of
	seed needs	production of certified plus registered seed	needs available from Minnesota certified and registered production
	<i>bushels</i>	<i>bushels</i>	
Soybeans	2,123,883	86,484	4.1
Flax	445,124	26,160	5.9
Oats	9,205,358	1,012,092	11.0
Barley	1,926,520	56,660	2.9
Spring wheat	1,170,104	10,464	.9
Winter wheat	39,600	4,357	11.0
Rye	73,944	12,023	16.3
Corn	1,327,213	175,418	13.2
Total	16,311,746	1,383,658	8.5

To be sure, seed moves extensively in interstate commerce in both directions, but it is clear that members of the Crop Improvement Association do not produce nearly enough for the home market. Without question the bottleneck is in sales, not production. Back at the St. Cloud meeting in 1919 Andrew Boss' paper said, "The demand can be made." We must admit that this part of the association's program has not been fully realized.

At the annual meeting on January 16, 1958, the membership voted in favor of a resolution to amend the articles of incorporation and bylaws. Major changes were (1) limitation of tenure for directors to 3 consecutive terms of 3 years each, and (2) the addition of one member making 10 elected members. The secretary becomes the 11th member; he is elected annually by the other 10. There was also considerable clarification of other sections of the documents. Dr. W. H. Dankers, extension agricultural economist of the Institute of Agriculture, was given credit for his valuable cooperation in preparing the revisions.

In April 1958, Harley J. Otto joined the Institute of Agriculture staff as extension agronomist. He was elected secretary of the association at the annual meeting in January 1959 to succeed Rodney A. Briggs who left to assume leadership of the new college at Morris. Otto, a native of Kansas, has received training at the University of Hawaii, Colorado State University, and Cornell University. From 1956 to 1957 he was an assistant pro-

fessor working on the corn breeding project at Cornell and as Extension Agronomist at the same institution 1957 to 1958. He is presently serving as secretary of the Minnesota Crop Improvement Association.

President Mitchell addressed the 1958 annual meeting of the South Dakota Crop Improvement Association at Mitchell. His clear statement on the purpose of seed certification is worth repeating. Mitchell said "Seed certification is intended to preserve the genetic purity, increase the supply of, and accelerate the distribution of new and improved varieties of field crops. The blue tag on a bag of seed grain is the same as the pedigree on a pure-bred animal. The parentage is known."

At the State Fair that fall the seed show was again tops. In the opinion of many viewers it was the best all-around seed show in the country. The Utility Certified Seed class hit an all-time high with 374 entries. Top winners in this group were: barley — Harold S. Olson, Milan; oats — Lickfett Elevator Co., Madelia; wheat — Frank Mitchell & Son, Canby; flax — Albert Schultz, Springfield; soybeans — Empey Farms, Farmington; hybrid shelled corn — C. V. Simpson, Waterville. The 1959 fair exhibit featured a special crops display.

For the 1959 crop the volume of certified oats and soybeans was down somewhat, and that of corn and bluegrass was up (see chart on certified seed production, chapter VII). In 1956 the Experiment Station released Park bluegrass. A farmers cooperative at Roseau, led by Gus Kveen, Charles Habstritt and others, have done a splendid job of producing and merchandising it. In 1960 production by the association was over a million pounds of certified turf grass seed, nearly all of it of the Park variety. In

Dr. Harley J. Otto, Extension Agronomist with the University and secretary of MCIA from 1959 to the present time.



1961 drought reduced the yield, but 1962 poundage may surpass 1960 somewhat.

In June 1961 Mervin Syverson left the staff to be Deputy Commissioner of Agriculture for the State of Minnesota, under Commissioner Duane A. Wilson. He had been employed by the association since 1950, and by his enthusiasm and diligence made a great contribution. He was replaced in northern Minnesota by Robert L. Potts, a graduate in agronomy from the University of Wisconsin. Potts has had many years experience in the seed trade. At the same time LeRoy Omland was employed as a field supervisor, to be located at Montevideo. Frank N. Fanberg went with the State Department of Agriculture in 1961. Duane M. Smith left the laboratory in April 1960 for employment with Barzen Seed Company of Minneapolis.

In 1959 the Minnesota Crop Improvement Association teamed up with the Rust Prevention Association, led by Donald G. Fletcher to support in the Legislature an appropriation for a new crops research laboratory. Others who joined in this effort were the Minnesota Farm Bureau, the Grange, The Minnesota Association of Soil Conservation Districts and the Central Livestock Association. The first unit of this laboratory is now complete, was put into use in the fall of 1962, and the second unit was provided for by the 1963 Legislature. Splendidly equipped for detailed scientific work, it is occupied jointly by the departments of Agronomy and Plant Genetics, Plant Pathology and Botany, and Soil Science.

On June 1, 1960 the Northwest Crop Improvement Association and the Rust Prevention Association were merged to form the Crop Quality Council. This was at the retirement of Executive Secretary Henry Putnam of the Northwest Crop Improvement Association. Donald G. Fletcher, formerly Executive Secretary of the Rust Prevention League, was named Vice President of the Crop Quality Council and their former fields of work were expanded.

In the Seed Grower, August 1960, a rather complete statement of the purposes of the Crop Quality Council was given. The board of directors consists of 10 outstanding leaders of business and industry relating broadly to agriculture. It was stated that "Cooperation will be sought with federal and state departments of agriculture, agricultural colleges, experiment stations, extension services, youth groups, farm organizations, cooperatives and commodity groups, scientific societies, national and state processors, transportation organizations, handlers and other businesses serving agriculture." It is evident that the aid of the Crop Quality Council will materially benefit the work of the Crop Improvement Association and all other legitimate agencies interested in an improved and more efficient agriculture.

Clarence L. Blanchar passed away at the age of 82 on July 21, 1962. He was a vigorous and effective supporter of crop improvement and the work of the Experiment Station. He served Minnesota Crop Improvement Association first as a member of the board of directors, and then as president from 1915 to 1918. As chairman of the legislative committee, he was

very active in fostering the appropriation for the Agronomy and Plant Pathology buildings. Robert W. Blanchar, who is presently a graduate student in Soil Science at the St. Paul Campus, relates that his grandfather often worked far into the night preparing material on crop improvement, and that when the Legislature was in session he would spend weeks at the capitol.

Carl Borgeson, by his diligent efforts and prompt attention to every detail, has through the years since 1935 built up the seed stocks project to an excellent and efficient organization. Without this basic and important program the seed certification program could not function. The following outline of the project has been prepared and distributed by Borgeson.

Imagine a massive train of 8,299 freight cars with 100 locomotives straining to put it along the tracks. Imagine that the train reaches from the Twin Cities almost to the Iowa border about 115 miles away. Then suppose that each of the cars is loaded with seed, and you'll have a good picture of how much seed is needed to plant Minnesota's crop acres each year.

Minnesota is one of the leading crop-producing states in the nation. With so many of their acres planted to crops, Minnesota farmers naturally are concerned with the seed they use. Some questions we might ask about



Student employee Cecil Hawl using a barley pearler. This aids in identifying kernels with colored aleurone, which may occur as impurities in some varieties.



Threshing and cleaning head rows from Borgeson's purification program. Student employees are James Haapala, left (a son of a seed grower), and Jack Sorterberg.

the seed carried on our imaginary train are: How much of the seed is of improved varieties? Is the seed true to variety and, in every other respect, good seed?

This seedstocks project on the St. Paul Campus, is located in the Agronomy Seedstocks building. It cooperates with the branch Experiment Stations, the Minnesota Crop Improvement Association, the Agricultural Extension Service, and the National Foundation Seedstocks Project. One of its major contributions is the increase and distribution of foundation seed of old and also new and improved varieties of field crops. The seed is rapidly multiplied and made available to seed growers. In a relatively short time the public can obtain seed from the seed growers. A constant source of pure seed known as "Foundation Seed" is maintained at all times.

The project is self-supporting from the sale of seedstocks. A staff is maintained, equipment and supplies purchased, and the Agronomy Seedstocks building and a part of the Minnesota Crop Improvement Association building were constructed from seed sales funds.

Purified seed is produced of wheat, oats, barley, soybeans and flax. One thousand head-rows are planted of the cereal grains and 300-500 plants are grown of the oil crops for each variety.

Foundation seed of improved varieties of small-seeded legumes and



Carl Borgeson examining head rows of Selkirk wheat grown at University Farm in 1961. This is part of the seed purification program referred to in Chapter V. Accompanying illustrations show some of the threshing and laboratory work.

grasses is available to Minnesota and other states through the National Foundation Seedstocks Project.

Since 1929 the Minnesota Agricultural Experiment Station has used a plan of distribution called the Approved Grower Plan. The plan is designed to distribute seed of new varieties to Approved Growers. The ever-present weed hazard and the chance of varietal mixtures makes it important that the first release of seed of new varieties be multiplied in the hands of trained, experienced, and trustworthy seed growers. These growers cooperate closely with the Minnesota Agricultural Experiment Station, the Agricultural Extension Service, and the Minnesota Crop Improvement Association.

Growers make application fourteen months in advance for the seed. Foundation seed is distributed only to *registered seed growers*, or persons who have a five-year record of satisfactory seed production.

Seed of new and improved inbred lines, single crosses, and double crosses are made available to seed corn producers and corn breeders. Superior corn varieties have been developed that combine high yield, sturdy

stalks, corn borer resistance, cold resistance, and satisfactory maturities for all sections of the state.

* * * * *

So we have traced the outlines of the history of the Minnesota Crop Improvement Association from 1903 to the present time. The more difficult part of the task has been to know what to leave out, rather than to find material. Records in the association office and in the Agronomy Department are complete, accurate, and voluminous. We have tried to consolidate them, point to the highlights, and tell the story in an accurate condensed form.

Similar developments have, of course, occurred in other states but Minnesota has been a leader and pioneer in many phases. Seed certification is the responsibility of the states and as we have shown this responsibility is defined by law. Among the first states to start field inspection were Wisconsin in 1913, Montana in 1915, Minnesota and Missouri in 1916 and Ohio in 1919. By 1959, 45 states had certification programs.

More recently movements to extend seed certification to international trade have been started. The Food and Agriculture Organization has helped establish, "Minimum certification standards for Maize in European and Mediterranean countries" and "Minimum certification standards for cereals in the Near East." All member countries of the Organization for European Cooperation have accepted a "Scheme for certification of herbage seeds moving in international trade."

* * * * *

From 1903 to 1963, from electric lights on the fairgrounds to the days of atomic power and the astronauts, this has been a story of growth. Very much as a seed grows and unfolds, so has the Minnesota Crop Improvement Association developed.

It remains in the last chapter to take a venturesome look at the future. Because to see the best road ahead as clearly as possible, is one of the objectives of assembling a history such as this.

* * * * *

The following compendium on the importance of seed is taken from Victor R. Boswell in the 1961 yearbook of the U.S.D.A. Seeds are many things, they are food for man and animals, vehicles for movement from place to place, raw material for products, a source of wealth and a source of wonder.

CHAPTER VII

The Role of Crop Improvement in a Dynamic Changing Agriculture

Perhaps the writer is a born optimist, but he sees a rosy future for the Minnesota Crop Improvement Association. The work has been and is being carried forward by so many sincere dedicated men, the goal is so important, the tradition attitudes so filled with Christian integrity, that it cannot fail. To be sure, there will be difficulties and setbacks and there is much work still to be done, but look at the progress made in the 60 years covered by this narrative. Can anyone doubt that progress will continue?

It is interesting to speculate on how many people have contributed to the program of Minnesota Crop Improvement since 1903. As noted above the membership in 1962 was nearly 1,500. It is difficult to tell how long the usual term of membership is but we can venture that at least 2000 former members were not on the roll in 1962. This totals 3,500 and we can double that because certainly every farmer's wife has had a part, a large part. Add to this practically every member of the plant science group at the St. Paul Campus, the county agents and their assistants and the employees of the association over its 60 year life. We can easily see that some 8 or 10 thousand people have had their shoulder to the wheel. We have shown the names of many and certainly many more deserve their share of credit.

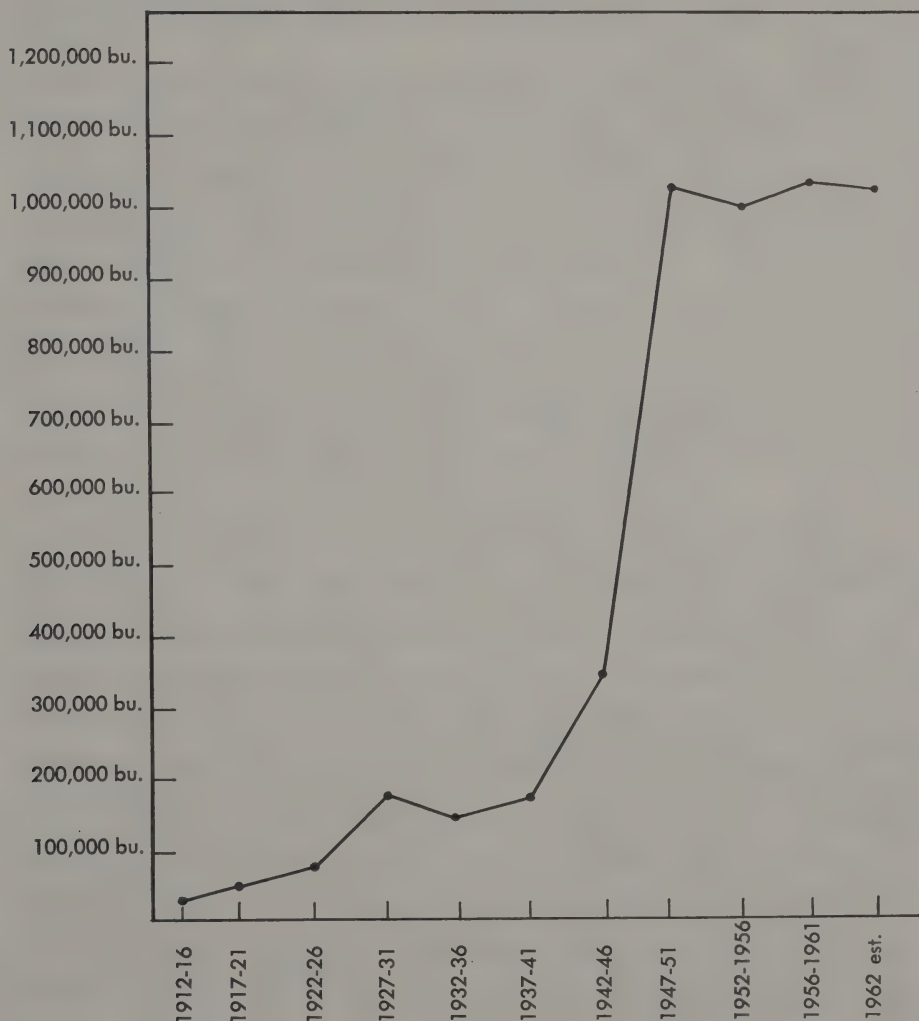
In the chart on page 120 we have pictured the amount of known quality seed produced in Minnesota, with a greater or lesser degree of documentary evidence attached to it. As we mentioned earlier, the association in 1912 began publication of a seed list. This included at first only seed available from the Experiment Station and that of growers who the officers knew had quality material for sale. Starting about 1920 seed certification as we know it today was established and there has been a tendency ever since to make additional requirements and continually improve the quality and reliability of the products. From 1912 to 1946 there was a gradual but almost continual increase in volume. During the next 5-year period, 1947 to 1951, there was a sharp rise from 329,497 to 1,097,361 bushels. A large part of this increase was due to oat bushelage, although corn and other crops were also increased. Out of 1,554,431 bushels in the 1947 total, 800,000 was Clinton oats.

MINNESOTA GROWN CERTIFIED AND REGISTERED SEED
FIVE YEAR AVERAGES 1912 TO 1962

Before 1920 the compilations were made from seed lists containing station grown seed and that offered by members of the association. There was no certified seed as we use the term today. Since that time, station-grown seed makes up only 1 or 2 percent of the total.

Interstate certification is not included in the averages. All crops are shown in bushels according to standard weight of the crop.

Since 1951 volume has held reasonably constant. The overall picture, 1912-1962, is one of growth. We have pointed to many evidences of this before, such as increased membership, larger budgets, more employees, and expanding activities as the years went by. Perhaps this picture of top



quality seed available from Minnesota growers is the best criteria of all. Certainly the seed from a large quantity of certified seed is planted again and this helps to upgrade a considerable acreage of Minnesota crops.

It will be of interest to see how much of each crop is included in the total production of certified, registered, and foundation seed. This is shown in a general way in the pie diagrams on page 122. An attempt has been made to avoid too much detail because this would only serve to cloud the picture. Detailed figures are available, however, for those who wish to pursue some particular comparison further. Starting with 1912, percentage distribution for superior seed which the association listed is shown by crops. This kind of distribution is shown also for 1922, 1942, 1952, and 1962 so that the trends can be outlined.

Notice that percentage of wheat has steadily decreased. Corn came to a maximum in the early forties and then decreased. Soybeans and bluegrass have recently increased, and oats has always accounted for a high percentage of the totals.

Back in 1920 Andrew Boss pointed to the potential market of 16 million bushels of seed for a total of over 11 million crop acres of Minnesota crops. To be sure, the picture is clouded by the fact that much seed moves in interstate and international commerce and that with self-pollinated crops, especially, the crop grown the first or second year after certification is still often satisfactory farm seed. Yet there is ample evidence to say that with 1 million bushels of certified seed grown annually, Minnesota growers have a long way to go to even satisfy their home market. The national figures were given by Myers at the St. Paul meeting of the International Crop Improvement Association in 1957, where he pointed out that only 6 to 8 percent of the crops (except rice) are sown from certified seed in the United States. The ideal, Myers said, was 20 to 30 percent of the self-pollinated crops and 100 percent of the cross-pollinated crops.

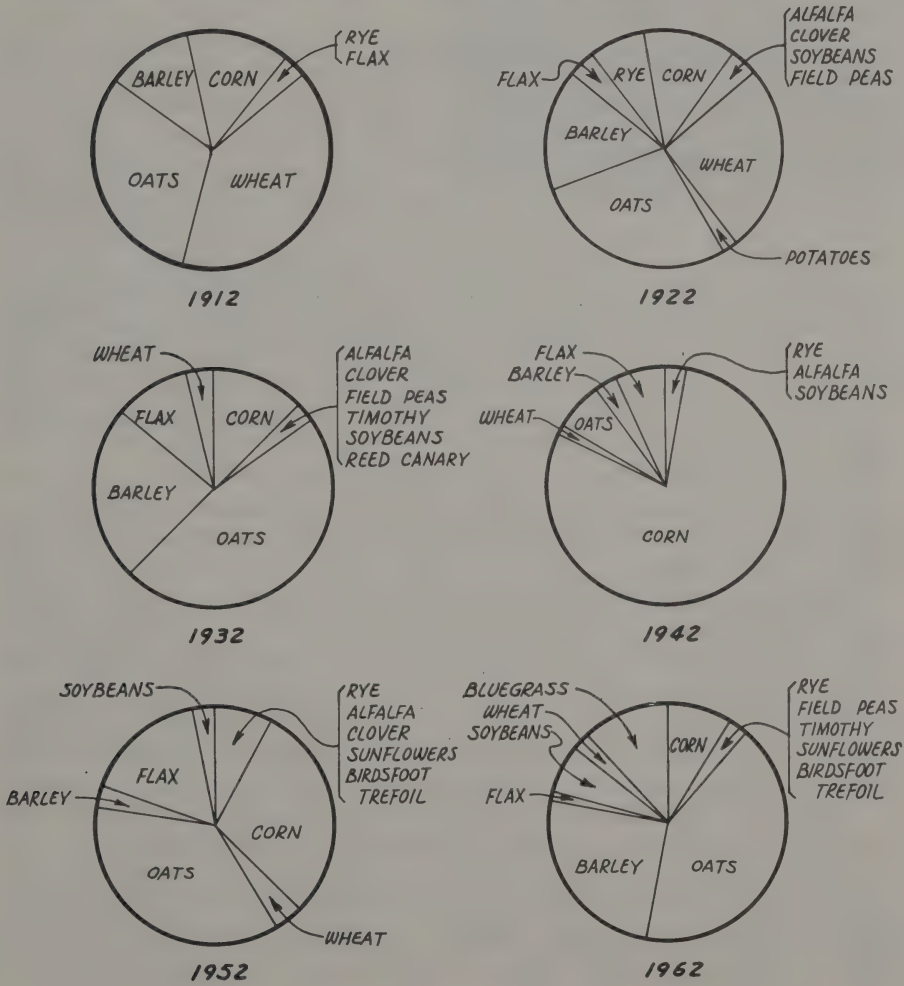
In addition it is possible to discern specific relatively new fields where expansion of certification work is possible or even likely. One is in the production of high quality grass and legume seed. The United States has an average annual production of 485,495,000 pounds of forage grass seed, counting only 17 species which are adapted to Minnesota conditions. At the present time only a small fraction of this total is quality certified seed. It is also encouraging that exports exceed imports by some 12 million pounds for seed of this group of crops.

The production of Park bluegrass seed by the Northern Minnesota Bluegrass Growers Association is an example of what can be done with grass seed. This is an excellent example of what cooperation can do. Cooperation not only among the farmers in the association but also in their relations with the Experiment Station, the Minnesota Crop Improvement Association and the seed trade. High quality has been rigidly maintained and with a good (but rather expensive) advertising campaign, this bluegrass group has been able to sell up towards a million pounds of certified Park seed per year in 1960, 1961, 1962 and 1963.

Another similar enterprise has developed with Timothy in Clearwater county, with Climax, bred at Ottawa, the dominant species. The producer owned plant at Gully cleaned 2 million pounds of Timothy seed in 1962.

Soybeans, a crop that has risen from obscurity in Minnesota to pre-eminence in a period of 20 years, promises to continue to increase in importance in the commercial market and also in the seed market. It appears that in the future both domestic and foreign soybean processors may be demanding greater quantities of soybeans and greater specificity in quality. That is, they may be wanting particular quality characteristics in their raw material which often can be handled only by maintaining varietal purity from farm to factory. An example is the demand from Japan where a colorless hilum is preferred for human food uses. It seems a real possi-

PERCENTAGE DISTRIBUTION OF DIFFERENT CROPS IN THE TOTAL MINNESOTA CERTIFIED SEED BY 10 YEAR INTERVALS 1912 TO 1962



bility that the Crop Improvement Association may provide a useful service in facilitating the maintenance of this purity.

Dr. R. G. Robinson, of the Department of Agronomy and Plant Genetics, is leader of a project which is investigating a whole series of new and little known crops to determine if they are adapted to Minnesota conditions. Sunflower, oilseed rape and mustard are possibilities for future use he believes. Many others are in preliminary test. The help of the Minnesota Crop Improvement Association will be needed to provide reliable seed supplies when and if some of these new crops come into use.

A great deal has been said and written recently about the decline in farm population percentagewise from about 40 per cent in 1903, and 25 percent in the late twenties to something around 8 percent today. Not so well publicized, but clearly evident to any observer, is the trend toward specialization. There are fruit growers, dairymen, turkey producers, and wheat growers, to mention only a few. Certainly high quality seed growing is one of these specialties.

Perhaps there is need of more emphasis on specialization in merchandising and selling of certified seed. The difficulty here, as pointed out in a panel discussion of the 1961 annual meeting, is that with a publicly owned variety there is understandably a reluctance to spend money on advertising. There are numerous examples where such advertising has been done, with the result that other producers without an advertising budget will start price cutting, leading eventually to loss of profit in seed production and finally to a reduction in volume of a desirable variety.

We have no ready suggestion of how this problem can be met. However, it can be noted that the policy of selling corn inbreds to the public without restriction seems to have helped avoid this type of undesirable competition. On the other hand, many of the resulting hybrids are sold under closed pedigree, which may be undesirable in some respects, one of which is that the accomplishments of the Experiment Station are not identified in the product. In any case, the chain from producer to processor, to salesman to customer must yield a legitimate profit to each contributor. Failing this, the whole system breaks down and the general public will lose from that failure.

What does the future hold for seed certification? R. H. "Bob" Backstrom, now president of the Association was asked to express his ideas on this question. Here is his long-range forecast. "I can foresee a much closer relationship between certified seed producers and the seed trade. Contract seed production on a large scale is not too far off and retail sales on the farm will be practically a thing of the past. This trend is already showing up in such crops as timothy, bluegrass, and red clover.

"Elimination of retail sales on the farm will result in a greatly expanded volume of certified seed moving out through seed trade channels.

"Then there will be a heavy influx of privately-developed varieties, and this move, too, is just starting. Certification agencies must work with private breeders to properly maintain the identity of private varieties. There is already a definite trend toward this kind of cooperation.

R. H. Backstrom, president of the Association 1961 to the present.



“Finally, seed certification has another real potential in contracting for production of foreign varieties with the country of origin. The way for this type of production has already been cleared through the O.E.C.D. scheme (Organization for Economic Cooperation and Development). Thus, all in all, the future appears bright but only time will prove or disprove these projections.”

* * * * *

One thing is certain, human nature being what it is, an unbiased certifying agency is necessary. Looking back over the past 60 years, The Minnesota Crop Improvement Association has done a tremendous job toward making a stronger, healthier, happier world. Well equipped with personnel and backed by a great tradition, it should and must continue to make even greater contributions.

Seed is a miraculous and a very basic thing. It is the beginning of crops, the source of nutrients for man, either directly or through livestock. On this foundation is built and maintained all our activities in science, art and religion. Without food no human institution could endure.



Recognition of Past Presidents M.C.I.A. Annual Dinner of Northwest and Minnesota Crop Improvement Associations, Leamington Hotel, Minneapolis, January 14, 1959. Dr. W. M. Myers congratulates Henry Leitschuh, Herman F. Skyberg, John W. Evans, Emil Wagner, and Charles V. Simpson.

ADDENDA

PRESIDENTS AND SECRETARIES 1903-1963

Below is a list of all presidents and secretaries of the association and their term of office. Annual meetings and elections have always been held in January. Accordingly a term of office starts at that time, however, December 31, of the preceeding year is listed as the change point. As described in Chapter I the first officers served from State Fair time 1903 until the annual meeting in January 1904.

<i>Presidents</i>	<i>Years</i>
O. C. Thompson — Farmington	1903-1906
Arthur C. Cooper — St. Cloud	1907-1908
C. W. Glotfelter — Waterville	1908-1914
C. L. Blanchar — Sherburn	1915-1918
Arthur C. Cooper — St. Cloud	1919-1920
C. E. Brown — Elk River	1921-1923
Henry C. Lau — Tracy	1924-1925
John W. Evans — Montevideo	1926-1933
Emil Wagner — Ada	1934-1937
H. F. Skyberg — Fisher	1938-1941
Henry Leitschuh — Sleepy Eye	1942-1947
Charles V. Simpson — Waterville	1948-1954
Frank L. Mitchell — Canby	1955-1960
R. H. Backstrom — Warren	1961

Secretaries

Willet M. Hays — University Farm	1903-1904
Coates P. Bull — University Farm	1905-1919
T. E. Odland — University Farm	1920-1921
A. D. Haedecke — University Farm	1922-1925
Ralph F. Crim — University Farm	1926-1928
Andrew Boss — University Farm	1929-1933 ¹
Ralph F. Crim — University Farm	1934-1953 ²
Carl Borgeson — University Farm	1954-1955
Rodney A. Briggs — University Farm	1956-1958
Harley J. Otto — University Farm	1959

¹ During this time Mr. Crim held the title of consulting agronomist but assumed the principal duties of secretary.

² Retired in June 1953, Carl Borgeson, assistant secretary, carried duties the rest of the year.

PREMIER SEED GROWERS RECOGNIZED BY THE NORTHWEST CROP IMPROVEMENT ASSOCIATION

1928

Tilberg, Gust, Fosston
Flaat, Ole A., Fisher
Lau, H. C., Tracy
Marsh, C. A., Tracy
Evans, John W., Montevideo
Lien, C. H., Montevideo
Riedesel, A. A., Windom
Hanson, H. P., Albert Lea
Lindsley, F. E., Garvin
Blanchar, C. L., Sherburn

1929

Wurden, Anchor, Fisher
Skyberg, Herman F., Fisher
Kalmoe, H. H., Montevideo
Meinhard, Henry, Sherburn
Pankratz, J. B., Mountain Lake
Wagner, Emil, Ada
Williams, C. C., Detroit Lakes
Holman, Andrew, Lanesboro

1930

Chapman, A. A., Olivia
Fausch, C. D., Morristown
Nelson, Will N., Tracy
Norum, Arthur E.
Olsgard, Henry H., Houston
Sharkey, W. J., Hanley Falls
Honorary: Andrew Boss

1931

Grathwohl, John M., Fairmont
Henderson, John, Cokato
Goodwin, N. C., Austin

1932

Olson, Nuel L., Cottonwood
Abrahamson, H. B., Dassel
Valan, M. O., Comstock
Peterson, Tobias, Blue Earth
Honorary: R. P. Woodworth

1933

Blatherwick, J. C., Breckenridge
Friedrichs, Wm., Foxhome
Mellum, Theo., Ulen
Olstad, Carl, Hanska
Pederson, H. B., Franklin

1934

Lilleodden, Oscar, Hanska
Haenke, W. F., Gilbert
Frederickson, Wm., Perley
David, Milford, Reading
Honorary: A. D. Haedecke

1935

Boulton, J. A., Porter

Hinrichs, E. R., Red Wing
Taylor, Joe, Medford

1936

Flaskerud, Melvin, Fosston
Hanson, Hjalmer G., Wolverton
Maas, Walter R., St. Boniface
Ordung, Phillip N., Luverne
Honorary: Coates P. Bull

1937

Berg, Carl, Chokio
Jacques, Wm. H., Prescott, Wis.
Welanders, Geo. E., Stillwater
Wurden, Edwin, Fisher
Honorary: H. R. Sumner

1938

Leitschuh, Henry, Sleepy Eye
Hempstead, Orson, Houston
Green, W. J., Lakefield
Poulsen, Wm., Redwood Falls
Honorary: C. P. Bull

1939

Ash, William, St. Vincent
Immer, Vern, Jeffers
Shuey, Clair, Pine City
Thompson, Theodore, Fergus Falls

1940

Johnson, E. L., Winnebago
Johansen, Erick, Tyler

1941

Nelson, Charles, Northfield
Nelson, John A., Maynard
Skyberg, Adolph, Fisher

1942

Samuelson, L. W., Lafayette
Sather, Sigred J., Madison
Honorary: Ralph F. Crim

1943

Johnson, Hiram, Ellendale
Nietfeld, Conrad, Melrose
Olson, Oscar J., Lake Park
Simpson, C. V., Waterville

1944

Erickson, Carl H., Oslo
Hegseth, Theodore, Fergus Falls
Rauenhorst, George, Olivia
Willette, Donald, Delavan
Honorary: Dr. H. K. Hayes

1945

Flaten, Martinus, Twin Valley
Olstad, Porter, Hanska
Wollum, Barney, Porter
Ziller, Anthony A., Bird Island
Honorary: Dr. E. C. Stakman

1946
Kveen, Gustav, Roseau
Larson, Arthur J., Rothsay
Payne, Alvin, DeGraff
Schwartau, Geo., Cannon Falls
Honorary: Dr. E. R. Ausemus

1947
Boucher, Geo., Sr., Waseca
Danielson, Wm., Rothsay
Foelschow, Henry, Farwell
Foelschow, Chas., Farwell
Lindesmith, Emery, Owatonna
Morton, James L., Hancock
Honorary: Jonas J. Christensen Dr.)
Prof. A. C. Arny

1948
Johnson, Herbert F., Hadley
Munger, Lee, Warren
Peterson, Algert, Buffalo
Honorary: C. Lee Alexander
Henry P. Putnam

1949
Domeier, Arthur V., Sleepy Eye
Mitchell, Frank L., Canby
Schmiesing, L. H., Vernon Center
Honorary: R. E. Hodgson
R. O. Bridgford

1950
Anderson, A. W., Clarkfield
Beyers, Arthur, Holland
Crippen, Frank, Sanborn
Erickson, Harold, Appleton
Wright, Leslie L., West Concord
Honorary: Prof. Ray S. Dunham

1951
Aarestad, Bennitt, Halstad
Field, Guy, Hutchinson
Pinney, Carl, Le Sueur
Trapp, Henry, Hastings
Vollum, Martine, Albert Lea
Honorary: Otto Swenson

1952
Leave, Edgar, Verndale
Meyer, William, Blue Earth
Swenson, Henry, Chisago City
Torgerson, Orrin, Fosston
Velde, Therol, Granite Falls
Honorary: Dr. J. O. Culbertson

1953
Homme, Kenneth, Granite Falls
Stoering, Hugo, Waterville
Tebben, Herman, Clara City
Winzer, Chas. A., Heron Lake
Honorary: Don Fletcher

1954
Bly, H. W., Hancock
Grathwohl, Elmer J., Fairmont

Grapuman, Hillard H., Biscay
Hjeltman, Arthur, Cambridge
Honorary: E. J. Mitchell

1955
Buer, Eldred, Canby
Damman, Lester, Plato
Kelsey, Dale, Lewisville
Zimmerman, R. L., Racine

1956
Backstrom, Robert, Warren
Cunningham, Earl, Sleepy Eye
Imdieke, Anthony, Melrose
Lau Brothers, Tracy
Outhoudt, Wayne, Lake Crystal
Honorary: Dr. J. W. Lambert

1957
Empey Farms, Farmington
Lee Brothers, Neilsville
Wm. G. Meyer & Son, Elgin
Strohl, Joseph, Waseca
Honorary: Dean T. H. Fenske
Ward H. Marshall

1958
Bielenberg Bros., Dodge Center
Brown, Carl, Winthrop
Enestvedt Bros., Sacred Heart
Hendel, George, Caledonia
Olson, Harold S., Milan
Rubis, Steve, Jr., Lakefield
Honorary: Carl Borgeson

1959
Dahlman, Arthur E., Dassel
Engelstad, Paul, Thief River Falls
Schwartz, E. Lester, Vernon Center
Tobolt, Harold W., Moorhead
Hartman, Paul S., Heron Lake
Honorary: Matthew B. Moore

1960
Barke, A. G., Fairmont
Dahlberg, Gottfred, Cambridge
Dahlberg, Phillip, Cambridge
Sendelbach, Joe, Wells
Nelson, Milton, Sacred Heart
Honorary: D. U. Harvey
Stanley Folsom

1961
Berg, Alfred, Sacred Heart
Maas, Lester H., Sleepy Eye
Bredlie, Elmer, Eldred
Honorary: Carl Ash and
W. M. Myers

1962
Stangler, Elmer J., Kilkenny
Strong Bros. (Alex and Ed), Alvarado
Thiel, Robert E., Windell
Honorary: Harold Macy

SEED COMPANIES HONORED FOR THEIR CONTRIBUTION TO BETTER CROPS
BY THE MINNESOTA CROP IMPROVEMENT ASSOCIATION

1953	Farmer Seed & Nursery Co., Faribault	1958	Marvin Lumber and Cedar Co., Warroad
1954	Farmer Seed and Supply, Ivanhoe	1959	Byron Farm Store, Waseca
1955	Cashman Seed Co., Owatonna	1960	Northrup King & Co., Minneapolis
1956	Albert Lea Seed House, Albert Lea	1961	Land O'Lakes Creameries, Inc., Minneapolis
1957	Munson Seed Co., Benson	1962	Ramy Seed Co., Mankato

ELEVATOR MANAGERS RECOGNIZED BY THE MINNESOTA CROP IMPROVEMENT
ASSOCIATION FOR LEADERSHIP IN PROMOTING RECOMMENDED VARIETIES
AND CERTIFIED SEED

1947	Hubert H. Lickfett, Madelia Leo J. Kieselbach, Barnesville G. H. Homme, Kirkhoven J. R. Ivery, Warren Kenneth Rasmussen, Jackson Glen Burnett, Tyler	J. G. Halverson, St. Peter D. E. Roddis, Rochester
1948	B. M. Larson, Argyle Emil Leitico, Stewart Bruce Edgar, Sanborn N. B. Dinneen, Rose Creek Keith Harein, Judson	1954 Carl Gjernes, Thief River Falls Wm. Svare, Kennedy Erwin W. Bluhm, Janesville
1949	Walter C. Barck, Pipestone Rudy Witthus, Buffalo Lake Wendell H. Lenton, Stewartville Harold C. Roth, Cambridge Albert Brantl, Ada	1955 Carl Nordvall, Roseau Earl D. Scott, Hardwick Edward Ordalen, Buffalo Jay A. Johnson, East Grand Forks
1950	Leon Goulet, Warren Thomas N. Lee, Baker H. R. Struck, Nassau Wm. Krogstad, Porter Leo Lester, Worthington	1956 Donald P. Bussee, Hendrum George M. Schuler, Breckenridge L. G. Boblirsch, Wabasso H. A. Lokken, Cyrus
1951	Gilbert Weisser, Greenwald M. E. Fjeld, Stephen J. R. Rasmussen, Marshall K. M. Johnson, Elmore Leonard E. McCracken, Northfield	1957 Elevator Manager Award Lloyd E. Hill, Warren Grain and Seed Company, Warren E. L. Prestemon, Bagley Co-op, Bagley A. Piehl, Farmers Co-op, Hutchinson
1952	Arthur Ludtke, Clarks Grove Marvin E. Peterson, Lewiston Harry L. Peterson, Litchfield John Glaeser, Gibbon Marvin Majerus, Stillwater Melvin Paavola, New York Mills	1958 George J. Hoffman, Marshall Robert Johnson, Owatonna John Pierson, Kiester
1953	Olaf Berrig, Halstad	1959 Emil Kluver, Clara City Ingard Knutson, Barnesville Charles K. Meierbachtol, Faribault
		1960 Forrest Mariner, Jackson Richard M. Smith, Campbell Ray Ulrich, Angus
		1961 Orrin Radach, Madison Mill and Elevator, Madison
		1962 Harold C. Putnam, Cannon Falls

FIRST CONSTITUTION AND BYLAWS OF THE MINNESOTA FIELD CROP BREEDERS ASSOCIATION

Adopted in January 1904

ARTICLE I

Name — This organization shall be known as the Minnesota Field Crop Breeders Association.

ARTICLE II

Objects — The objects of this association shall be:

- 1st — To collect and disseminate information concerning the growing, harvesting, storing and handling of seeds of the staple field crops.
- 2nd — By selection and breeding to improve the yield and quality of all field crops.
- 3rd — To encourage better and more thorough methods of cultivation.
- 4th — To publish the transactions of all meetings and other information of interest to field seed growers.
- 5th — To aid in the organization of subordinate and auxiliary associations throughout the state.

ARTICLE III

Membership — The membership of this association shall consist of those who are interested in breeding, growing, and handling seeds of field crops.

ARTICLE IV

Officers — The officers shall be elected by ballot for one year and shall consist of a president, one vice-president from each congressional district, a secretary, and three members to be elected.

ARTICLE V

Meetings — The annual meeting shall be held during the same week as the annual meeting of the State Agricultural Society. Other meetings may be held at such times as the executive committee may direct.

ARTICLE VI

Amendments — Amendments and alterations of this constitution may be made at any annual meeting by a majority vote, provided that the amendment shall have been presented at the previous annual meeting and that notice of the proposed amendment shall have been mailed to all members by the secretary, at least thirty (30) days before the date of the annual meeting at which the amendment is voted upon.

ARTICLE VII

Fees — The annual fees of this association shall be one dollar (\$1), to be paid previous to the close of each annual meeting.

ARTICLE VIII

Bylaws — The bylaws may be amended at any annual meeting by a majority vote of a quorum, the quorum to be at least nine (9) members present and voting.

BYLAWS

1. It shall be the duty of the president to preside at all meetings of the association; to deliver an address at the regular annual meeting; to countersign all orders on the treasurer, and to appoint all committees not otherwise provided for.

2. The vice-president, in order, shall preside at meetings in the absence of the president.

3. The secretary shall keep a record of the proceedings of all meetings; shall attend to, and preserve a record of all correspondence, which shall be open to all members of the association; shall issue orders for the payment of all expenses — when so directed by the executive committee; shall prepare all communications for publication; shall receive and turn over to the treasurer all moneys paid into the association; shall act as librarian and report to the association concerning the same; shall notify all members at least two weeks previous to all meetings of the association.

4. The treasurer shall collect and hold all funds of the association and pay out the same only on order of the secretary and president. The executive committee may require a suitable bond of the treasurer.

5. The executive committee shall arrange the programs, places of meeting, etc., for all meetings; audit all accounts of the association, fill (prom) all vacancies in office; appoint committees on nominations, publish reports and otherwise represent the association when it is not in session.

6. Members of the association shall be entitled to one copy, post paid, of the transactions, as often as published.

7. The election of officers shall be by ballot at the regular annual meeting. The president, vice-president, secretary and treasurer shall be elected for one year. The members of the executive committee shall serve three years and shall be so elected that one vacancy shall be filled each year.

8. A committee consisting of three members shall be appointed to promote the organization of an auxiliary known as the Corn Breeders Auxiliary of the Minnesota Field Crop Breeders Association.

Adopted by the Association at its first annual meeting, January 12, 1904.

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